



Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

Laboratory Job ID: 160-40800-1
Laboratory Sample Delivery Group: GJ46599746
Client Project/Site: HPNS-Parcel G 501197
Revision: 1

For:
Aptim Federal Services LLC
4005 Port Chicago Hwy, Suite 200
Concord, California 94520

Attn: Rose Condit

Elizabeth M. Hoercher

Authorized for release by:
4/13/2021 4:19:12 PM
Elizabeth Hoerchler, Project Manager I
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Designee for
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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: Aptim Federal Services LLC
Project/Site: HPNS-Parcel G 501197

Job ID: 160-40800-1
SDG: GJ46599746

Job ID: 160-40800-1

Laboratory: Eurofins TestAmerica, St. Louis

Narrative

CASE NARRATIVE

Client: Aptim Federal Services LLC

Project: HPNS-Parcel G 501197

Report Number: 160-40800-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, St. Louis attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results for Chemistry analyses are reported on an ""as received"" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt.

Manual Integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure. Detailed information can be found in the raw data section of the level IV report.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

The matrix for the Method Blank and LCS is as close to the following samples as can be reasonably achieved. Detailed information can be found in the most current revision of the associated SOP.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

Revision 1- Additional information requested in case narrative for total strontium.

Case Narrative

Client: Aptim Federal Services LLC
Project/Site: HPNS-Parcel G 501197

Job ID: 160-40800-1
SDG: GJ46599746

Job ID: 160-40800-1 (Continued)

Laboratory: Eurofins TestAmerica, St. Louis (Continued)

RECEIPT

The samples were received on 12/15/2020; the samples arrived in good condition, properly preserved. The temperature of the coolers at receipt was 7.0 C.

STRONTIUM-90 (GFPC)

Samples HPPG-ESU-TU124A-001 (160-40800-1), HPPG-ESU-TU124A-011 (160-40800-11) and HPPG-ESU-TU124A-021 (160-40800-21) were analyzed for Strontium-90 (GFPC) in accordance with EPA 905. The samples were dried on 12/17/2020, prepared on 12/28/2020 and analyzed on 01/06/2021.

When taking small mass aliquots from dried/disaggregated sample, the laboratory avoids large rocks/pebbles (as well as sticks, etc) which may constitute a larger than representative portion of the aliquot. Smaller rocks may be included. This is consistent with QSM and Laboratory SOP. HPPG-ESU-TU124A-001 (160-40800-1), HPPG-ESU-TU124A-011 (160-40800-11), HPPG-ESU-TU124A-021 (160-40800-21) and (160-40800-A-21-B DU)

The method blank (MB) Z-score is within limits and is located in the level IV raw data. (MB 160-493207/23-A)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

RADIUM-226 BY GAMMA SPEC (21 DAY INGROWTH)

Samples HPPG-ESU-TU124A-001 (160-40800-1), HPPG-ESU-TU124A-002 (160-40800-2), HPPG-ESU-TU124A-003 (160-40800-3), HPPG-ESU-TU124A-004 (160-40800-4), HPPG-ESU-TU124A-005 (160-40800-5), HPPG-ESU-TU124A-006 (160-40800-6), HPPG-ESU-TU124A-007 (160-40800-7), HPPG-ESU-TU124A-008 (160-40800-8), HPPG-ESU-TU124A-009 (160-40800-9), HPPG-ESU-TU124A-010 (160-40800-10), HPPG-ESU-TU124A-011 (160-40800-11), HPPG-ESU-TU124A-012 (160-40800-12), HPPG-ESU-TU124A-013 (160-40800-13), HPPG-ESU-TU124A-014 (160-40800-14), HPPG-ESU-TU124A-015 (160-40800-15), HPPG-ESU-TU124A-016 (160-40800-16), HPPG-ESU-TU124A-017 (160-40800-17), HPPG-ESU-TU124A-018 (160-40800-18), HPPG-ESU-TU124A-019 (160-40800-19), HPPG-ESU-TU124A-020 (160-40800-20), HPPG-ESU-TU124A-021 (160-40800-21), HPPG-ESU-TU124A-022 (160-40800-22), HPPG-ESU-TU124A-023 (160-40800-23), HPPG-ESU-TU124A-024 (160-40800-24), HPPG-ESU-TU124A-025 (160-40800-25), HPPG-F-057 (160-40800-26) and HPPG-F-058 (160-40800-27) were analyzed for Radium-226 by gamma spec (21 day ingrowth) in accordance with EPA GA_01_R. The samples were dried on 12/17/2020, prepared on 12/21/2020 and 12/22/2020 and analyzed on 01/11/2021 and 01/12/2021.

Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:

Inferred from Reported to Analyte

| | |
|---------|---------|
| Th-234 | Pa-234 |
| Th-234 | U-238 |
| Pb-210 | Po-210 |
| Pb-210 | Bi-210 |
| Cs-137 | Ba-137m |
| Pb-212 | Po-216 |
| Xe-131m | Xe-131 |
| Sb-125 | Te-125m |
| Ag-108m | Ag-108 |
| Rh-106 | Ru-106 |
| Pb-212 | Th-228 |
| Pb-212 | Ra-224 |
| U-235 | Th-231 |
| Ac-228 | Th-232 |
| Ac-228 | Ra-228 |
| Th-227 | Ra-223 |
| Th-227 | Ac-227 |
| Th-227 | Bi-211 |
| Th-227 | Pb-211 |

Case Narrative

Client: Aptim Federal Services LLC
Project/Site: HPNS-Parcel G 501197

Job ID: 160-40800-1
SDG: GJ46599746

Job ID: 160-40800-1 (Continued)

Laboratory: Eurofins TestAmerica, St. Louis (Continued)

Bi-214 Ra-226

Gamma prep batch 492605

The method blank (MB) z-score associated with Prep Batch 160-492605 is within limits and is stored in the level IV raw data. (MB 160-492605/1-A)

The relative percent difference (RPD) and replicate error ratio (RER) is outside of the acceptance limits of 40%/1 for Pa-234 (197% / 1.65). Both the sample and duplicate activity were less than the MDC. The data have been reported.(160-40800-A-4-C DU)

The replicate precision for Pb-212/Th-228 associated with Prep Batch 160-492295 and 160-492605 does not meet QC criteria. This appears to be random in nature, and limited deviations such as this are statistically expected when larger analyte lists are reported. Such excursions are often caused by fluctuations in Compton background, force-fitting of peaks that are not found by the software peak-search algorithm, and inclusion of inferior peak results by the software in weighted averages. The laboratory SOP allows for such statistical exceedances. (160-40800-A-4-C DU)

The following sample exhibited a negative result greater in magnitude than the 3 sigma TPU for Pb-210: HPPG-ESU-TU124A-002 (160-40800-2). This occurrence was evaluated and determined to be random in nature. Sporadic occurrences such as this are statistically expected. No further action is required.

Gamma prep batch 492647

The method blank (MB) z-score is within limits and is stored in the level IV raw data. (MB 160-492647/1-A)

The replicate precision for Th-234/U-238 associated with Prep Batch 160-492295 and 160-492647 does not meet QC criteria. This appears to be random in nature, and limited deviations such as this are statistically expected when larger analyte lists are reported. Such excursions are often caused by fluctuations in Compton background, force-fitting of peaks that are not found by the software peak-search algorithm, and inclusion of inferior peak results by the software in weighted averages. The laboratory SOP allows for such statistical exceedances. (160-40800-A-17-C DU)

Gamma prep batch 492786

The method blank (MB) z-score is within limits and is stored in the level IV raw data. (MB 160-492786/1-A)

The replicate precision for Th-234/U-238 associated with Prep Batch 160-492298 and 160-492786 does not meet QC criteria. This appears to be random in nature, and limited deviations such as this are statistically expected when larger analyte lists are reported. Such excursions are often caused by fluctuations in Compton background, force-fitting of peaks that are not found by the software peak-search algorithm, and inclusion of inferior peak results by the software in weighted averages. The laboratory SOP allows for such statistical exceedances. (160-40800-A-27-C DU)

The cesium-137 detection goal of 0.0700 pCi/g was not met. This is caused by statistical fluctuations in the Compton background due to low level activity in the samples in conjunction with the software attempting to fit a peak into the noise of this baseline.

HPPG-ESU-TU124A-024 (160-40800-24)

Gamma prep batch 492786

The following samples exhibited a negative result greater in magnitude than the 3 sigma TPU (160-40800-27; Th-234 and 160-40800-27 DU; U-235): HPPG-F-058 (160-40800-27) and (160-40800-A-27-C DU). This occurrence was evaluated and determined to be random in nature. Sporadic occurrences such as this are statistically expected. No further action is required.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



CHAIN OF CUSTODY

Ref. Document # 501197RSY-054

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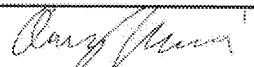
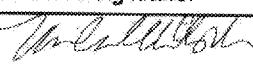
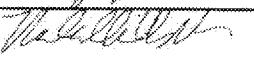
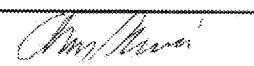
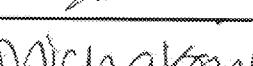
APTIM Federal Services, LLC

4005 Port Chicago Hwy
Concord, CA 94520Project Manager: Lisa Bercik
Phone #: (619)213-3389Send Report To: Rose Condit
Phone/Fax Number: 415-987-0760
Address: 4005 Port Chicago Hwy

Sample Lead: Murri, Andrew

Sample Tech(s): Paul Leblanc

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| Project Information | | | | Analysis Requested | | | | | | | | | | | |
|--|------------|---|--------|---|-----------------|---------------------------------|---|---|--|--------------------------------|------------|-----------------------|----|-----|------------------|
| Project Number: 501197 Project Name: Hunters Point Naval Shipyard: Parcel G Remedial Action Project Location: San Francisco, CA Purchase Order #: 1159058 Shipment/Pickup Date: 12/14/2020 Waybill Number: 0957-0225 0099 Lab Destination: Test America (St. Louis Lab) 13715 Rider Trail North Earth City, MO 63046 | | | |  160-40800 Chain of Custody | | | | | | | | | | | |
| Lab Contact Name/ph # | | | | Sample Spec (EPA 905 M0D) - Full 21 day ingrowth gamma Preservatives (water) | | | | | | | | | | | |
| | | | | Dose Rate uR/Hr | Evidence Bag ID | Comment | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| Collection Information | | | | Matrix # of Containers Preservatives (soil) | | | | | | | | | | | |
| Sample ID | Date | Time | Method | Container Type Preservatives (soil) | | | | | | | | | | | |
| HPPG-ESU-TU124A-001 | 12/10/2020 | 11:00 | G | SO | 1 | 16 oz. plastic jar | X | X | | 6 | GJ46599746 | | | | |
| HPPG-ESU-TU124A-002 | 12/10/2020 | 11:03 | G | SO | 1 | 16 oz. plastic jar | X | | | 6 | GJ46599746 | | | | |
| HPPG-ESU-TU124A-003 | 12/10/2020 | 11:07 | G | SO | 1 | 16 oz. plastic jar | X | | | 6 | GJ46599746 | | | | |
| HPPG-ESU-TU124A-004 | 12/10/2020 | 11:09 | G | SO | 1 | 16 oz. plastic jar | X | | | 6 | GJ46599746 | | | | |
| HPPG-ESU-TU124A-005 | 12/10/2020 | 11:11 | G | SO | 1 | 16 oz. plastic jar | X | | | 6 | GJ46599746 | | | | |
| HPPG-ESU-TU124A-006 | 12/10/2020 | 11:13 | G | SO | 1 | 16 oz. plastic jar | X | | | 6 | GJ46599746 | | | | |
| HPPG-ESU-TU124A-007 | 12/10/2020 | 11:15 | G | SO | 1 | 16 oz. plastic jar | X | | | 6 | GJ46599746 | | | | |
| HPPG-ESU-TU124A-008 | 12/10/2020 | 11:17 | G | SO | 1 | 16 oz. plastic jar | X | | | 6 | GJ46599746 | | | | |
| Special Instructions: 21 day ingrowth results only | | | | | | | | | | | | | | | |
| Turnaround Time: | | | | 3-day <input type="checkbox"/> | | 10-Day <input type="checkbox"/> | | 28-day <input type="checkbox"/> | | Other <input type="checkbox"/> | | Level of QC Required: | | | |
| | | | | | | | | | | | | I | II | III | Project Specific |
| Method Codes C = Composite G = Grab Matrix Codes: DW = Drinking Water; So = Soil; GW = Ground Water; SL = Sludge; WW = Waste Water; CP = Chip Samples; A = Air; ABS = Asbestos; PO = Pipe Opening | | | | | | | | | | | | | | | |
| Relinquished By: | | Relinquisher Signature: | | Relinquish Date Time: | | Received By: | | Received Signature: | | Receive Date Time: | | | | | |
| Murri, Andrew | |  | | 12/10/2020 16:51 | | Locked Storage (RKillpack) | |  | | 12/10/2020 16:51 | | | | | |
| Locked Storage (RKillpack) | |  | | 12/14/2020 10:16 | | Andrew Murri | |  | | 12/14/2020 10:16 | | | | | |
| Andrew Murri | |  | | 12/14/2020 10:21 | | SHIPPED TO LAB VIA FED EX | |  | | 12/14/2020 10:21 | | | | | |

*** Last 3 transfers shown above - Complete list of transfers on last page

MICHAEL KORRIN HIZER

01/24



ED_006360A_00000346-00006



CHAIN OF CUSTODY

Ref. Document # 501197RSY-054

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APTM Federal Services, LLC

4005 Port Chicago Hwy
Concord, CA 94520

Project Manager: Lisa Bercik
Phone #: (619)213-3389

Send Report to: Rose Condit
Phone/Fax Number: 415-387-0760
Address: 4005 Port Chicago Hwy
City: Concord CA 94520

Sample Leaf: Murri, Andrew

Sample Tech(s): Paul Leblanc

| | | | | | | | | | | | | | |
|--|-------|---|--------------------|-----------------|-----------------------|--|---|---|--|---|-----------------|-----------------|---------|
| Project Number: 501197 | | | Analysis Requested | | | | | | | | | | |
| Project Name: Hunters Point Naval Shipyard: Parcel G Remedial Action | | | | | | | | | | | | | |
| Project Location: San Francisco, CA | | | | | | | | | | | | | |
| Purchase Order #: 1159058 | | | | | | | | | | | | | |
| Shipment/Pickup Date: 12/14/2020 | | | | | | | | | | | | | |
| Waybill Number: 41957 0225 9099 | | | | | | | | | | | | | |
| Lab Destination: Test America (St. Louis Lab) 13715 Rider Trail North Earth City, MO 63046 | | | | | | | | | | | | | |
| Lab Contact Name/ph # Rhoeda Ridenbower (314)298-8566 | | | | | | | | | | | | | |
| | | | Matrix | # of Containers | Preservatives (water) | | | | | | Dose Rate uR/Hr | Evidence Bag ID | Comment |
| | | | | | Preservatives (soil) | | | | | | | | |
| | | | | | Container Type | | | | | | | | |
| 20 | 11:19 | G | SO | 1 | 16 oz. plastic jar | | X | | | 6 | GJ46599746 | | |
| 20 | 11:21 | G | SO | 1 | 16 oz. plastic jar | | X | | | 6 | GJ46599746 | | |
| 20 | 11:23 | G | SO | 1 | 16 oz. plastic jar | | X | X | | 6 | GJ46599746 | | |
| 20 | 11:25 | G | SO | 1 | 16 oz. plastic jar | | X | | | 6 | GJ46599746 | | |
| 20 | 11:27 | G | SO | 1 | 16 oz. plastic jar | | X | | | 6 | GJ46599746 | | |
| 20 | 11:29 | G | SO | 1 | 16 oz. plastic jar | | X | | | 6 | GJ46599746 | | |
| 20 | 11:31 | G | SO | 1 | 16 oz. plastic jar | | X | | | 6 | GJ46599746 | | |
| 20 | 11:33 | G | SO | 1 | 16 oz. plastic jar | | X | | | 6 | GJ46599746 | | |
| 20 | 11:35 | G | SO | 1 | 16 oz. plastic jar | | X | | | 6 | GJ46599746 | | |
| 20 | 11:37 | G | SO | 1 | 16 oz. plastic jar | | X | | | 6 | GJ46599746 | | |
| 20 | 11:39 | G | SO | 1 | 16 oz. plastic jar | | X | | | 6 | GJ46599746 | | |
| 20 | 11:41 | G | SO | 1 | 16 oz. plastic jar | | X | | | 6 | GJ46599746 | | |
| 20 | 11:43 | G | SO | 1 | 16 oz. plastic jar | | X | X | | 6 | GJ46599746 | | |
| 20 | 11:45 | G | SO | 1 | 16 oz. plastic jar | | X | | | 6 | GJ46599746 | | |
| 20 | 11:47 | G | SO | 1 | 16 oz. plastic jar | | X | | | 6 | GJ46599746 | | |
| 20 | 11:49 | G | SO | 1 | 16 oz. plastic jar | | X | | | 6 | GJ46599746 | | |
| 20 | 11:51 | G | SO | 1 | 16 oz. plastic jar | | X | | | 6 | GJ46599746 | | |



CHAIN OF CUSTODY

Ref. Document # 501197RSY-054

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APTIM Federal Services, LLC

4005 Port Chicago Hwy
Concord, CA 94520Project Manager: Lisa Berck
Phone #: (619)213-3389Send Report to: Rose Condit
Phone/Fax Number: 415-987-0760
Address: 4005 Port Chicago Hwy
City: Concord, CA 94520

Sample Lead: Murri, Andrew

Sample Tech(s): Paul Leblanc

Project Number: 501197

Hunters Point Naval Shipyard; Parcel

Project Name: G Remedial Action

Project Location: San Francisco, CA

Purchase Order #: 1159058

Shipment/Pickup Date: 12/14/2020

Waybill Number: 4957 8825 9079

Test America (St. Louis Lab)

Lab Destination: 13715 Rider Trail North
Earth City, MO 63046

Lab Contact Name/ph #

Rhoeda Ridenbower (314)298-8566

Preservatives (water)

Preservatives (soil)

| | Collection Information | | | | Matrix | # of Containers | Container Type | Preservatives (water) | Preservatives (soil) | Comments | Shipment Spec (EPA 901-1 M) - Full 21 day hi growth gamma | Storage Spec (EPA 905 M0D) | Analysis Requested | Dose Rate μ R/Hr | Evidence Bag ID | Comment |
|------------|------------------------|-------|--------|-----|--------|-----------------|--------------------|-----------------------|----------------------|----------|---|----------------------------|--------------------|----------------------|-----------------|---------|
| Sample ID | Date | Time | Method | Q/S | | | | | | | | | | | | |
| HPPG-F-057 | 12/10/2020 | 11:21 | G | OS | 1 | 1 | 16 oz. plastic jar | X | | | | | | 6 | GJ46599746 | |
| HPPG-F-058 | 12/10/2020 | 11:53 | G | OS | 1 | 1 | 16 oz. plastic jar | X | | | | | | 6 | GJ46599746 | |



All Transfers for COC 501197RSY-054

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| Relinquished By: | Relinquisher Signature: | Relinquish Date Time: | Received By: | Received Signature: | Receive Date Time: |
|----------------------------|-------------------------|-----------------------|----------------------------|--------------------------|--------------------------------------|
| Murri, Andrew | <i>Andrew Murri</i> | 12/10/2020 16:51 | Locked Storage (RKillpack) | <i>John Cullinan</i> | 12/10/2020 16:51 |
| Locked Storage (RKillpack) | <i>John Cullinan</i> | 12/14/2020 10:16 | Andrew Murri | <i>Andrew Murri</i> | 12/14/2020 10:16 |
| Andrew Murri | <i>Andrew Murri</i> | 12/14/2020 10:21 | SHIPPEDTOLAB VIA FEDEX | <i>Micha Korrinziger</i> | 12/14/2020 09:24 MICHAKORRINZIGER |

Login Sample Receipt Checklist

Client: Aptim Federal Services LLC

Job Number: 160-40800-1

SDG Number: GJ46599746

Login Number: 40800

List Source: Eurofins TestAmerica, St. Louis

List Number: 1

Creator: Korrinhizer, Micha L

| Question | Answer | Comment |
|--|--------|---------|
| Radioactivity wasn't checked or is </= background as measured by a survey meter. | True | |
| The cooler's custody seal, if present, is intact. | True | |
| Sample custody seals, if present, are intact. | True | |
| The cooler or samples do not appear to have been compromised or tampered with. | True | |
| Samples were received on ice. | True | |
| Cooler Temperature is acceptable. | True | |
| Cooler Temperature is recorded. | True | |
| COC is present. | True | |
| COC is filled out in ink and legible. | True | |
| COC is filled out with all pertinent information. | True | |
| Is the Field Sampler's name present on COC? | True | |
| There are no discrepancies between the containers received and the COC. | True | |
| Samples are received within Holding Time (excluding tests with immediate HTs) | True | |
| Sample containers have legible labels. | True | |
| Containers are not broken or leaking. | True | |
| Sample collection date/times are provided. | True | |
| Appropriate sample containers are used. | True | |
| Sample bottles are completely filled. | True | |
| Sample Preservation Verified. | True | |
| There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs | True | |
| Containers requiring zero headspace have no headspace or bubble is <6mm (1/4"). | True | |
| Multiphasic samples are not present. | True | |
| Samples do not require splitting or compositing. | True | |
| Residual Chlorine Checked. | N/A | |

Definitions/Glossary

Client: Aptim Federal Services LLC
Project/Site: HPNS-Parcel G 501197

Job ID: 160-40800-1
SDG: GJ46599746

Qualifiers

| Rad Qualifier | Qualifier Description |
|---------------|---------------------------------------|
| U | Undetected at the Limit of Detection. |

Glossary

| Abbreviation | These commonly used abbreviations may or may not be present in this report. |
|----------------|---|
| % | Listed under the "D" column to designate that the result is reported on a dry weight basis |
| %R | Percent Recovery |
| CFL | Contains Free Liquid |
| CFU | Colony Forming Unit |
| CNF | Contains No Free Liquid |
| DER | Duplicate Error Ratio (normalized absolute difference) |
| Dil Fac | Dilution Factor |
| DL | Detection Limit (DoD/DOE) |
| DL, RA, RE, IN | Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample |
| DLC | Decision Level Concentration (Radiochemistry) |
| EDL | Estimated Detection Limit (Dioxin) |
| LOD | Limit of Detection (DoD/DOE) |
| LOQ | Limit of Quantitation (DoD/DOE) |
| MCL | EPA recommended "Maximum Contaminant Level" |
| MDA | Minimum Detectable Activity (Radiochemistry) |
| MDC | Minimum Detectable Concentration (Radiochemistry) |
| MDL | Method Detection Limit |
| ML | Minimum Level (Dioxin) |
| MPN | Most Probable Number |
| MQL | Method Quantitation Limit |
| NC | Not Calculated |
| ND | Not Detected at the reporting limit (or MDL or EDL if shown) |
| NEG | Negative / Absent |
| POS | Positive / Present |
| PQL | Practical Quantitation Limit |
| PRES | Presumptive |
| QC | Quality Control |
| RER | Relative Error Ratio (Radiochemistry) |
| RL | Reporting Limit or Requested Limit (Radiochemistry) |
| RPD | Relative Percent Difference, a measure of the relative difference between two points |
| TEF | Toxicity Equivalent Factor (Dioxin) |
| TEQ | Toxicity Equivalent Quotient (Dioxin) |
| TNTC | Too Numerous To Count |

Method Summary

Client: Aptim Federal Services LLC
Project/Site: HPNS-Parcel G 501197

Job ID: 160-40800-1
SDG: GJ46599746

| Method | Method Description | Protocol | Laboratory |
|---------------|---|----------|------------|
| 905 | Strontium-90 (GFPC) | EPA | TAL SL |
| GA-01-R | Radium-226 & Other Gamma Emitters (GS) | DOE | TAL SL |
| DPS-7 | Preparation, Digestion/Precipitate Separation (7-Day In-Growth) | None | TAL SL |
| Dry and Grind | Preparation, Dry and Grind | None | TAL SL |
| Fill_Geo-21 | Fill Geometry, 21-Day In-Growth | None | TAL SL |

Protocol References:

DOE = U.S. Department of Energy

EPA = US Environmental Protection Agency

None = None

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Aptim Federal Services LLC
 Project/Site: HPNS-Parcel G 501197

Job ID: 160-40800-1
 SDG: GJ46599746

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received | Asset ID |
|---------------|---------------------|--------|----------------|----------------|----------|
| 160-40800-1 | HPPG-ESU-TU124A-001 | Solid | 12/10/20 11:00 | 12/15/20 09:24 | |
| 160-40800-2 | HPPG-ESU-TU124A-002 | Solid | 12/10/20 11:03 | 12/15/20 09:24 | |
| 160-40800-3 | HPPG-ESU-TU124A-003 | Solid | 12/10/20 11:07 | 12/15/20 09:24 | |
| 160-40800-4 | HPPG-ESU-TU124A-004 | Solid | 12/10/20 11:09 | 12/15/20 09:24 | |
| 160-40800-5 | HPPG-ESU-TU124A-005 | Solid | 12/10/20 11:11 | 12/15/20 09:24 | |
| 160-40800-6 | HPPG-ESU-TU124A-006 | Solid | 12/10/20 11:13 | 12/15/20 09:24 | |
| 160-40800-7 | HPPG-ESU-TU124A-007 | Solid | 12/10/20 11:15 | 12/15/20 09:24 | |
| 160-40800-8 | HPPG-ESU-TU124A-008 | Solid | 12/10/20 11:17 | 12/15/20 09:24 | |
| 160-40800-9 | HPPG-ESU-TU124A-009 | Solid | 12/10/20 11:19 | 12/15/20 09:24 | |
| 160-40800-10 | HPPG-ESU-TU124A-010 | Solid | 12/10/20 11:21 | 12/15/20 09:24 | |
| 160-40800-11 | HPPG-ESU-TU124A-011 | Solid | 12/10/20 11:23 | 12/15/20 09:24 | |
| 160-40800-12 | HPPG-ESU-TU124A-012 | Solid | 12/10/20 11:25 | 12/15/20 09:24 | |
| 160-40800-13 | HPPG-ESU-TU124A-013 | Solid | 12/10/20 11:27 | 12/15/20 09:24 | |
| 160-40800-14 | HPPG-ESU-TU124A-014 | Solid | 12/10/20 11:29 | 12/15/20 09:24 | |
| 160-40800-15 | HPPG-ESU-TU124A-015 | Solid | 12/10/20 11:31 | 12/15/20 09:24 | |
| 160-40800-16 | HPPG-ESU-TU124A-016 | Solid | 12/10/20 11:33 | 12/15/20 09:24 | |
| 160-40800-17 | HPPG-ESU-TU124A-017 | Solid | 12/10/20 11:35 | 12/15/20 09:24 | |
| 160-40800-18 | HPPG-ESU-TU124A-018 | Solid | 12/10/20 11:37 | 12/15/20 09:24 | |
| 160-40800-19 | HPPG-ESU-TU124A-019 | Solid | 12/10/20 11:39 | 12/15/20 09:24 | |
| 160-40800-20 | HPPG-ESU-TU124A-020 | Solid | 12/10/20 11:41 | 12/15/20 09:24 | |
| 160-40800-21 | HPPG-ESU-TU124A-021 | Solid | 12/10/20 11:43 | 12/15/20 09:24 | |
| 160-40800-22 | HPPG-ESU-TU124A-022 | Solid | 12/10/20 11:45 | 12/15/20 09:24 | |
| 160-40800-23 | HPPG-ESU-TU124A-023 | Solid | 12/10/20 11:47 | 12/15/20 09:24 | |
| 160-40800-24 | HPPG-ESU-TU124A-024 | Solid | 12/10/20 11:49 | 12/15/20 09:24 | |
| 160-40800-25 | HPPG-ESU-TU124A-025 | Solid | 12/10/20 11:53 | 12/15/20 09:24 | |
| 160-40800-26 | HPPG-F-057 | Solid | 12/10/20 11:21 | 12/15/20 09:24 | |
| 160-40800-27 | HPPG-F-058 | Solid | 12/10/20 11:53 | 12/15/20 09:24 | |

Eurofins TestAmerica, St. Louis

Client Sample Results

Client: Aptim Federal Services LLC
Project/Site: HPNS-Parcel G 501197

Job ID: 160-40800-1
SDG: GJ46599746

Client Sample ID: HPPG-ESU-TU124A-001

Lab Sample ID: 160-40800-1

Date Collected: 12/10/20 11:00

Matrix: Solid

Date Received: 12/15/20 09:24

Method: 905 - Strontium-90 (GFPC)

| Analyte | Result | Qualifier | Count | Total | LOQ | DLC | Unit | Prepared | Analyzed | Dil Fac |
|----------------|---------------|------------------|--------------------|--------------------|-------|-------|-------|-----------------|-----------------|----------------|
| | | | Uncert. (2σ+/-) | Uncert. (2σ+/-) | | | | | | |
| Strontium-90 | 0.0313 | U | 0.148 | 0.148 | 0.331 | 0.119 | pCi/g | 12/28/20 18:50 | 01/06/21 17:43 | 1 |
| Carrier | %Yield | Qualifier | Limits | | | | | Prepared | Analyzed | Dil Fac |
| Sr Carrier | 99.6 | | 40 - 110 | | | | | 12/28/20 18:50 | 01/06/21 17:43 | 1 |
| Y Carrier | 90.5 | | 40 - 110 | | | | | 12/28/20 18:50 | 01/06/21 17:43 | 1 |

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

| Analyte | Result | Qualifier | Count | Total | LOQ | DLC | Unit | Prepared | Analyzed | Dil Fac |
|--------------------|--------------|-----------|--------------------|--------------------|--------|--------|-------|----------------|----------------|---------|
| | | | Uncert. (2σ+/-) | Uncert. (2σ+/-) | | | | | | |
| Actinium 228 | 0.598 | | 0.165 | 0.176 | | 0.0605 | pCi/g | 12/21/20 09:42 | 01/11/21 09:37 | 1 |
| Actinium-227 | 0.0122 | U | 0.0366 | 0.0366 | | 0.367 | pCi/g | 12/21/20 09:42 | 01/11/21 09:37 | 1 |
| Bismuth-212 | 0.278 | U | 0.562 | 0.563 | | 0.430 | pCi/g | 12/21/20 09:42 | 01/11/21 09:37 | 1 |
| Bismuth-214 | 0.449 | | 0.134 | 0.141 | | 0.0553 | pCi/g | 12/21/20 09:42 | 01/11/21 09:37 | 1 |
| Cesium-137 | 0.0130 | U | 0.0342 | 0.0342 | 0.0700 | 0.0260 | pCi/g | 12/21/20 09:42 | 01/11/21 09:37 | 1 |
| Lead-210 | 1.92 | | 1.37 | 1.39 | | 0.831 | pCi/g | 12/21/20 09:42 | 01/11/21 09:37 | 1 |
| Lead-212 | 0.456 | | 0.136 | 0.148 | | 0.0937 | pCi/g | 12/21/20 09:42 | 01/11/21 09:37 | 1 |
| Lead-214 | 0.563 | | 0.120 | 0.133 | | 0.0572 | pCi/g | 12/21/20 09:42 | 01/11/21 09:37 | 1 |
| Potassium-40 | 8.94 | | 1.34 | 1.62 | | 0.282 | pCi/g | 12/21/20 09:42 | 01/11/21 09:37 | 1 |
| Protactinium-231 | 0.000 | U | 0.811 | 0.811 | | 2.15 | pCi/g | 12/21/20 09:42 | 01/11/21 09:37 | 1 |
| Protactinium-234 | -0.0104 | U | 0.297 | 0.297 | | 0.245 | pCi/g | 12/21/20 09:42 | 01/11/21 09:37 | 1 |
| Radium-226 | 0.449 | | 0.134 | 0.141 | 0.200 | 0.0553 | pCi/g | 12/21/20 09:42 | 01/11/21 09:37 | 1 |
| Radium-228 | 0.598 | | 0.165 | 0.176 | | 0.0605 | pCi/g | 12/21/20 09:42 | 01/11/21 09:37 | 1 |
| Thallium-208 | 0.169 | | 0.0625 | 0.0649 | | 0.0242 | pCi/g | 12/21/20 09:42 | 01/11/21 09:37 | 1 |
| Thorium 228 | 0.456 | | 0.136 | 0.148 | | 0.0937 | pCi/g | 12/21/20 09:42 | 01/11/21 09:37 | 1 |
| Thorium-232 | 0.598 | | 0.165 | 0.176 | | 0.0605 | pCi/g | 12/21/20 09:42 | 01/11/21 09:37 | 1 |
| Thorium-234 | 0.455 | U | 0.616 | 0.618 | | 0.482 | pCi/g | 12/21/20 09:42 | 01/11/21 09:37 | 1 |
| Uranium-235 | 0.00827 | U | 0.0328 | 0.0328 | | 0.412 | pCi/g | 12/21/20 09:42 | 01/11/21 09:37 | 1 |
| Uranium-238 | 0.455 | U | 0.616 | 0.618 | | 0.482 | pCi/g | 12/21/20 09:42 | 01/11/21 09:37 | 1 |

Client Sample ID: HPPG-ESU-TU124A-002

Lab Sample ID: 160-40800-2

Date Collected: 12/10/20 11:03

Matrix: Solid

Date Received: 12/15/20 09:24

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

| Analyte | Result | Qualifier | Count | Total | LOQ | DLC | Unit | Prepared | Analyzed | Dil Fac |
|--------------------|--------------|-----------|--------------------|--------------------|--------|--------|-------|----------------|----------------|---------|
| | | | Uncert. (2σ+/-) | Uncert. (2σ+/-) | | | | | | |
| Actinium 228 | 0.566 | | 0.173 | 0.182 | | 0.0350 | pCi/g | 12/21/20 09:42 | 01/11/21 09:36 | 1 |
| Actinium-227 | 0.197 | U | 0.387 | 0.388 | | 0.360 | pCi/g | 12/21/20 09:42 | 01/11/21 09:36 | 1 |
| Bismuth-212 | 0.294 | U | 0.848 | 0.848 | | 0.671 | pCi/g | 12/21/20 09:42 | 01/11/21 09:36 | 1 |
| Bismuth-214 | 0.509 | | 0.160 | 0.169 | | 0.0635 | pCi/g | 12/21/20 09:42 | 01/11/21 09:36 | 1 |
| Cesium-137 | 0.0303 | U | 0.0508 | 0.0509 | 0.0700 | 0.0378 | pCi/g | 12/21/20 09:42 | 01/11/21 09:36 | 1 |
| Lead-210 | -1.76 | U | 0.827 | 0.852 | | 1.53 | pCi/g | 12/21/20 09:42 | 01/11/21 09:36 | 1 |
| Lead-212 | 0.409 | | 0.111 | 0.123 | | 0.0668 | pCi/g | 12/21/20 09:42 | 01/11/21 09:36 | 1 |
| Lead-214 | 0.402 | | 0.136 | 0.142 | | 0.0806 | pCi/g | 12/21/20 09:42 | 01/11/21 09:36 | 1 |
| Potassium-40 | 8.45 | | 1.48 | 1.71 | | 0.253 | pCi/g | 12/21/20 09:42 | 01/11/21 09:36 | 1 |
| Protactinium-231 | 0.000 | U | 0.697 | 0.697 | | 2.35 | pCi/g | 12/21/20 09:42 | 01/11/21 09:36 | 1 |

Eurofins TestAmerica, St. Louis

Client Sample Results

Client: Aptim Federal Services LLC
Project/Site: HPNS-Parcel G 501197

Job ID: 160-40800-1
SDG: GJ46599746

Client Sample ID: HPPG-ESU-TU124A-002
Date Collected: 12/10/20 11:03
Date Received: 12/15/20 09:24

Lab Sample ID: 160-40800-2
Matrix: Solid

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS) (Continued)

| Analyte | Result | Qualifier | Count | Total | LOQ | DLC | Unit | Prepared | Analyzed | Dil Fac |
|------------------|---------|-----------|--------------------|--------------------|-------|--------|-------|----------------|----------------|---------|
| | | | Uncert. (2σ+/-) | Uncert. (2σ+/-) | | | | | | |
| Protactinium-234 | -0.0433 | U | 0.0999 | 0.100 | | 0.251 | pCi/g | 12/21/20 09:42 | 01/11/21 09:36 | 1 |
| Radium-226 | 0.509 | | 0.160 | 0.169 | 0.200 | 0.0635 | pCi/g | 12/21/20 09:42 | 01/11/21 09:36 | 1 |
| Radium-228 | 0.566 | | 0.173 | 0.182 | | 0.0350 | pCi/g | 12/21/20 09:42 | 01/11/21 09:36 | 1 |
| Thallium-208 | 0.0582 | | 0.110 | 0.110 | | 0.0535 | pCi/g | 12/21/20 09:42 | 01/11/21 09:36 | 1 |
| Thorium 228 | 0.409 | | 0.111 | 0.123 | | 0.0668 | pCi/g | 12/21/20 09:42 | 01/11/21 09:36 | 1 |
| Thorium-232 | 0.566 | | 0.173 | 0.182 | | 0.0350 | pCi/g | 12/21/20 09:42 | 01/11/21 09:36 | 1 |
| Thorium-234 | -0.899 | U | 0.806 | 0.812 | | 1.21 | pCi/g | 12/21/20 09:42 | 01/11/21 09:36 | 1 |
| Uranium-235 | 0.169 | U | 0.326 | 0.327 | | 0.414 | pCi/g | 12/21/20 09:42 | 01/11/21 09:36 | 1 |
| Uranium-238 | -0.899 | U | 0.806 | 0.812 | | 1.21 | pCi/g | 12/21/20 09:42 | 01/11/21 09:36 | 1 |

Client Sample ID: HPPG-ESU-TU124A-003

Lab Sample ID: 160-40800-3

Date Collected: 12/10/20 11:07

Matrix: Solid

Date Received: 12/15/20 09:24

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

| Analyte | Result | Qualifier | Count | Total | LOQ | DLC | Unit | Prepared | Analyzed | Dil Fac |
|------------------|---------|-----------|--------------------|--------------------|--------|--------|-------|----------------|----------------|---------|
| | | | Uncert. (2σ+/-) | Uncert. (2σ+/-) | | | | | | |
| Actinium 228 | 0.496 | | 0.149 | 0.157 | | 0.111 | pCi/g | 12/21/20 09:42 | 01/11/21 09:38 | 1 |
| Actinium-227 | 0.228 | U | 0.352 | 0.353 | | 0.246 | pCi/g | 12/21/20 09:42 | 01/11/21 09:38 | 1 |
| Bismuth-212 | -0.212 | U | 0.572 | 0.572 | | 0.451 | pCi/g | 12/21/20 09:42 | 01/11/21 09:38 | 1 |
| Bismuth-214 | 0.434 | | 0.0952 | 0.105 | | 0.0289 | pCi/g | 12/21/20 09:42 | 01/11/21 09:38 | 1 |
| Cesium-137 | -0.0353 | U | 0.0267 | 0.0270 | 0.0700 | 0.0571 | pCi/g | 12/21/20 09:42 | 01/11/21 09:38 | 1 |
| Lead-210 | 0.972 | | 0.988 | 0.994 | | 0.753 | pCi/g | 12/21/20 09:42 | 01/11/21 09:38 | 1 |
| Lead-212 | 0.462 | | 0.0754 | 0.0963 | | 0.0281 | pCi/g | 12/21/20 09:42 | 01/11/21 09:38 | 1 |
| Lead-214 | 0.445 | | 0.0985 | 0.109 | | 0.0367 | pCi/g | 12/21/20 09:42 | 01/11/21 09:38 | 1 |
| Potassium-40 | 8.41 | | 1.17 | 1.45 | | 0.249 | pCi/g | 12/21/20 09:42 | 01/11/21 09:38 | 1 |
| Protactinium-231 | 0.000 | U | 0.630 | 0.630 | | 1.83 | pCi/g | 12/21/20 09:42 | 01/11/21 09:38 | 1 |
| Protactinium-234 | 0.0369 | U | 0.0261 | 0.0264 | | 0.217 | pCi/g | 12/21/20 09:42 | 01/11/21 09:38 | 1 |
| Radium-226 | 0.434 | | 0.0952 | 0.105 | 0.200 | 0.0289 | pCi/g | 12/21/20 09:42 | 01/11/21 09:38 | 1 |
| Radium-228 | 0.496 | | 0.149 | 0.157 | | 0.111 | pCi/g | 12/21/20 09:42 | 01/11/21 09:38 | 1 |
| Thallium-208 | 0.200 | | 0.0509 | 0.0549 | | 0.0125 | pCi/g | 12/21/20 09:42 | 01/11/21 09:38 | 1 |
| Thorium 228 | 0.462 | | 0.0754 | 0.0963 | | 0.0281 | pCi/g | 12/21/20 09:42 | 01/11/21 09:38 | 1 |
| Thorium-232 | 0.496 | | 0.149 | 0.157 | | 0.111 | pCi/g | 12/21/20 09:42 | 01/11/21 09:38 | 1 |
| Thorium-234 | 0.361 | | 0.445 | 0.447 | | 0.290 | pCi/g | 12/21/20 09:42 | 01/11/21 09:38 | 1 |
| Uranium-235 | 0.000 | U | 0.158 | 0.158 | | 0.404 | pCi/g | 12/21/20 09:42 | 01/11/21 09:38 | 1 |
| Uranium-238 | 0.361 | | 0.445 | 0.447 | | 0.290 | pCi/g | 12/21/20 09:42 | 01/11/21 09:38 | 1 |

Client Sample ID: HPPG-ESU-TU124A-004

Lab Sample ID: 160-40800-4

Date Collected: 12/10/20 11:09

Matrix: Solid

Date Received: 12/15/20 09:24

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

| Analyte | Result | Qualifier | Count | Total | LOQ | DLC | Unit | Prepared | Analyzed | Dil Fac |
|--------------|--------|-----------|--------------------|--------------------|-----|--------|-------|----------------|----------------|---------|
| | | | Uncert. (2σ+/-) | Uncert. (2σ+/-) | | | | | | |
| Actinium 228 | 0.499 | | 0.133 | 0.142 | | 0.0432 | pCi/g | 12/21/20 09:42 | 01/11/21 09:40 | 1 |
| Actinium-227 | 0.146 | U | 0.375 | 0.375 | | 0.246 | pCi/g | 12/21/20 09:42 | 01/11/21 09:40 | 1 |

Eurofins TestAmerica, St. Louis

Client Sample Results

Client: Aptim Federal Services LLC
 Project/Site: HPNS-Parcel G 501197

Job ID: 160-40800-1
 SDG: GJ46599746

Client Sample ID: HPPG-ESU-TU124A-004

Lab Sample ID: 160-40800-4

Date Collected: 12/10/20 11:09

Matrix: Solid

Date Received: 12/15/20 09:24

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS) (Continued)

| Analyte | Result | Qualifier | Count | Total | LOQ | DLC | Unit | Prepared | Analyzed | Dil Fac |
|---------------------|--------------|-----------|---------|---------|--------|--------|-------|----------------|----------------|---------|
| | | | (2σ+/-) | (2σ+/-) | | | | | | |
| Bismuth-212 | -0.0705 | U | 0.615 | 0.615 | | 0.501 | pCi/g | 12/21/20 09:42 | 01/11/21 09:40 | 1 |
| Bismuth-214 | 0.468 | | 0.103 | 0.114 | | 0.0335 | pCi/g | 12/21/20 09:42 | 01/11/21 09:40 | 1 |
| Cesium-137 | -0.0338 | U | 0.0612 | 0.0613 | 0.0700 | 0.0481 | pCi/g | 12/21/20 09:42 | 01/11/21 09:40 | 1 |
| Lead-210 | -0.602 | U | 1.29 | 1.29 | | 1.04 | pCi/g | 12/21/20 09:42 | 01/11/21 09:40 | 1 |
| Lead-212 | 0.0436 | U | 0.105 | 0.105 | | 0.0849 | pCi/g | 12/21/20 09:42 | 01/11/21 09:40 | 1 |
| Lead-214 | 0.401 | | 0.0836 | 0.0934 | | 0.0441 | pCi/g | 12/21/20 09:42 | 01/11/21 09:40 | 1 |
| Potassium-40 | 9.49 | | 1.18 | 1.53 | | 0.0853 | pCi/g | 12/21/20 09:42 | 01/11/21 09:40 | 1 |
| Protactinium-231 | 0.0278 | U | 2.13 | 2.13 | | 1.75 | pCi/g | 12/21/20 09:42 | 01/11/21 09:40 | 1 |
| Protactinium-234 | 0.152 | U | 0.0878 | 0.0892 | | 0.184 | pCi/g | 12/21/20 09:42 | 01/11/21 09:40 | 1 |
| Radium-226 | 0.468 | | 0.103 | 0.114 | 0.200 | 0.0335 | pCi/g | 12/21/20 09:42 | 01/11/21 09:40 | 1 |
| Radium-228 | 0.499 | | 0.133 | 0.142 | | 0.0432 | pCi/g | 12/21/20 09:42 | 01/11/21 09:40 | 1 |
| Thallium-208 | 0.103 | | 0.0516 | 0.0527 | | 0.0228 | pCi/g | 12/21/20 09:42 | 01/11/21 09:40 | 1 |
| Thorium 228 | 0.0436 | U | 0.105 | 0.105 | | 0.0849 | pCi/g | 12/21/20 09:42 | 01/11/21 09:40 | 1 |
| Thorium-232 | 0.499 | | 0.133 | 0.142 | | 0.0432 | pCi/g | 12/21/20 09:42 | 01/11/21 09:40 | 1 |
| Thorium-234 | 0.000 | U | 0.388 | 0.388 | | 0.782 | pCi/g | 12/21/20 09:42 | 01/11/21 09:40 | 1 |
| Uranium-235 | -0.164 | U | 0.445 | 0.446 | | 0.363 | pCi/g | 12/21/20 09:42 | 01/11/21 09:40 | 1 |
| Uranium-238 | 0.000 | U | 0.388 | 0.388 | | 0.782 | pCi/g | 12/21/20 09:42 | 01/11/21 09:40 | 1 |

Client Sample ID: HPPG-ESU-TU124A-005

Lab Sample ID: 160-40800-5

Date Collected: 12/10/20 11:11

Matrix: Solid

Date Received: 12/15/20 09:24

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

| Analyte | Result | Qualifier | Count | Total | LOQ | DLC | Unit | Prepared | Analyzed | Dil Fac |
|---------------------|--------------|-----------|---------|---------|--------|--------|-------|----------------|----------------|---------|
| | | | (2σ+/-) | (2σ+/-) | | | | | | |
| Actinium 228 | 0.271 | | 0.242 | 0.244 | | 0.143 | pCi/g | 12/21/20 13:06 | 01/11/21 09:37 | 1 |
| Actinium-227 | 0.254 | U | 0.392 | 0.393 | | 0.355 | pCi/g | 12/21/20 13:06 | 01/11/21 09:37 | 1 |
| Bismuth-212 | 0.000 | U | 0.773 | 0.773 | | 0.788 | pCi/g | 12/21/20 13:06 | 01/11/21 09:37 | 1 |
| Bismuth-214 | 0.365 | | 0.155 | 0.160 | | 0.0693 | pCi/g | 12/21/20 13:06 | 01/11/21 09:37 | 1 |
| Cesium-137 | 0.0213 | U | 0.0825 | 0.0825 | 0.0700 | 0.0662 | pCi/g | 12/21/20 13:06 | 01/11/21 09:37 | 1 |
| Lead-210 | -2.25 | U | 1.57 | 1.60 | | 1.80 | pCi/g | 12/21/20 13:06 | 01/11/21 09:37 | 1 |
| Lead-212 | 0.396 | | 0.103 | 0.113 | | 0.0562 | pCi/g | 12/21/20 13:06 | 01/11/21 09:37 | 1 |
| Lead-214 | 0.463 | | 0.144 | 0.154 | | 0.0771 | pCi/g | 12/21/20 13:06 | 01/11/21 09:37 | 1 |
| Potassium-40 | 7.84 | | 1.44 | 1.70 | | 0.344 | pCi/g | 12/21/20 13:06 | 01/11/21 09:37 | 1 |
| Protactinium-231 | 0.000 | U | 0.496 | 0.496 | | 2.48 | pCi/g | 12/21/20 13:06 | 01/11/21 09:37 | 1 |
| Protactinium-234 | 0.101 | U | 0.0665 | 0.0676 | | 0.316 | pCi/g | 12/21/20 13:06 | 01/11/21 09:37 | 1 |
| Radium-226 | 0.365 | | 0.155 | 0.160 | 0.200 | 0.0693 | pCi/g | 12/21/20 13:06 | 01/11/21 09:37 | 1 |
| Radium-228 | 0.271 | | 0.242 | 0.244 | | 0.143 | pCi/g | 12/21/20 13:06 | 01/11/21 09:37 | 1 |
| Thallium-208 | 0.224 | | 0.0751 | 0.0794 | | 0.0244 | pCi/g | 12/21/20 13:06 | 01/11/21 09:37 | 1 |
| Thorium 228 | 0.396 | | 0.103 | 0.113 | | 0.0562 | pCi/g | 12/21/20 13:06 | 01/11/21 09:37 | 1 |
| Thorium-232 | 0.271 | | 0.242 | 0.244 | | 0.143 | pCi/g | 12/21/20 13:06 | 01/11/21 09:37 | 1 |
| Thorium-234 | -0.534 | U | 0.720 | 0.723 | | 0.923 | pCi/g | 12/21/20 13:06 | 01/11/21 09:37 | 1 |
| Uranium-235 | 0.000 | U | 0.222 | 0.222 | | 0.505 | pCi/g | 12/21/20 13:06 | 01/11/21 09:37 | 1 |
| Uranium-238 | -0.534 | U | 0.720 | 0.723 | | 0.923 | pCi/g | 12/21/20 13:06 | 01/11/21 09:37 | 1 |

Eurofins TestAmerica, St. Louis

Client Sample Results

Client: Aptim Federal Services LLC
 Project/Site: HPNS-Parcel G 501197

Job ID: 160-40800-1
 SDG: GJ46599746

Client Sample ID: HPPG-ESU-TU124A-006

Lab Sample ID: 160-40800-6

Date Collected: 12/10/20 11:13

Matrix: Solid

Date Received: 12/15/20 09:24

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

| Analyte | Result | Qualifier | Count | Total | LOQ | DLC | Unit | Prepared | Analyzed | Dil Fac |
|---------------------|--------------|-----------|---------|---------|--------|--------|-------|----------------|----------------|---------|
| | | | (2σ+/-) | (2σ+/-) | | | | | | |
| Actinium 228 | 0.490 | | 0.170 | 0.177 | | 0.0808 | pCi/g | 12/21/20 13:06 | 01/11/21 09:51 | 1 |
| Actinium-227 | 0.117 U | | 0.371 | 0.371 | | 0.292 | pCi/g | 12/21/20 13:06 | 01/11/21 09:51 | 1 |
| Bismuth-212 | 0.310 U | | 0.744 | 0.744 | | 0.578 | pCi/g | 12/21/20 13:06 | 01/11/21 09:51 | 1 |
| Bismuth-214 | 0.551 | | 0.153 | 0.163 | | 0.0553 | pCi/g | 12/21/20 13:06 | 01/11/21 09:51 | 1 |
| Cesium-137 | 0.0272 U | | 0.0498 | 0.0499 | 0.0700 | 0.0373 | pCi/g | 12/21/20 13:06 | 01/11/21 09:51 | 1 |
| Lead-210 | 1.35 | | 1.50 | 1.51 | | 0.980 | pCi/g | 12/21/20 13:06 | 01/11/21 09:51 | 1 |
| Lead-212 | 0.448 | | 0.0918 | 0.103 | | 0.0438 | pCi/g | 12/21/20 13:06 | 01/11/21 09:51 | 1 |
| Lead-214 | 0.492 | | 0.113 | 0.123 | | 0.0546 | pCi/g | 12/21/20 13:06 | 01/11/21 09:51 | 1 |
| Potassium-40 | 9.60 | | 1.60 | 1.87 | | 0.263 | pCi/g | 12/21/20 13:06 | 01/11/21 09:51 | 1 |
| Protactinium-231 | 0.000 U | | 0.944 | 0.944 | | 2.23 | pCi/g | 12/21/20 13:06 | 01/11/21 09:51 | 1 |
| Protactinium-234 | -0.100 U | | 0.310 | 0.310 | | 0.252 | pCi/g | 12/21/20 13:06 | 01/11/21 09:51 | 1 |
| Radium-226 | 0.551 | | 0.153 | 0.163 | 0.200 | 0.0553 | pCi/g | 12/21/20 13:06 | 01/11/21 09:51 | 1 |
| Radium-228 | 0.490 | | 0.170 | 0.177 | | 0.0808 | pCi/g | 12/21/20 13:06 | 01/11/21 09:51 | 1 |
| Thallium-208 | 0.187 | | 0.0582 | 0.0613 | | 0.0150 | pCi/g | 12/21/20 13:06 | 01/11/21 09:51 | 1 |
| Thorium 228 | 0.448 | | 0.0918 | 0.103 | | 0.0438 | pCi/g | 12/21/20 13:06 | 01/11/21 09:51 | 1 |
| Thorium-232 | 0.490 | | 0.170 | 0.177 | | 0.0808 | pCi/g | 12/21/20 13:06 | 01/11/21 09:51 | 1 |
| Thorium-234 | -0.270 U | | 0.900 | 0.900 | | 0.748 | pCi/g | 12/21/20 13:06 | 01/11/21 09:51 | 1 |
| Uranium-235 | -0.0167 U | | 0.570 | 0.570 | | 0.469 | pCi/g | 12/21/20 13:06 | 01/11/21 09:51 | 1 |
| Uranium-238 | -0.270 U | | 0.900 | 0.900 | | 0.748 | pCi/g | 12/21/20 13:06 | 01/11/21 09:51 | 1 |

Client Sample ID: HPPG-ESU-TU124A-007

Lab Sample ID: 160-40800-7

Date Collected: 12/10/20 11:15

Matrix: Solid

Date Received: 12/15/20 09:24

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

| Analyte | Result | Qualifier | Count | Total | LOQ | DLC | Unit | Prepared | Analyzed | Dil Fac |
|---------------------|--------------|-----------|---------|---------|--------|--------|-------|----------------|----------------|---------|
| | | | (2σ+/-) | (2σ+/-) | | | | | | |
| Actinium 228 | 0.505 | | 0.186 | 0.193 | | 0.0846 | pCi/g | 12/21/20 13:06 | 01/11/21 09:44 | 1 |
| Actinium-227 | 0.0487 U | | 0.201 | 0.201 | | 0.329 | pCi/g | 12/21/20 13:06 | 01/11/21 09:44 | 1 |
| Bismuth-212 | 0.0953 U | | 1.08 | 1.08 | | 0.882 | pCi/g | 12/21/20 13:06 | 01/11/21 09:44 | 1 |
| Bismuth-214 | 0.357 | | 0.108 | 0.114 | | 0.0417 | pCi/g | 12/21/20 13:06 | 01/11/21 09:44 | 1 |
| Cesium-137 | -0.0405 U | | 0.0693 | 0.0694 | 0.0700 | 0.0540 | pCi/g | 12/21/20 13:06 | 01/11/21 09:44 | 1 |
| Lead-210 | 0.627 U | | 1.33 | 1.33 | | 0.900 | pCi/g | 12/21/20 13:06 | 01/11/21 09:44 | 1 |
| Lead-212 | 0.503 | | 0.0910 | 0.112 | | 0.0395 | pCi/g | 12/21/20 13:06 | 01/11/21 09:44 | 1 |
| Lead-214 | 0.442 | | 0.115 | 0.124 | | 0.0472 | pCi/g | 12/21/20 13:06 | 01/11/21 09:44 | 1 |
| Potassium-40 | 8.58 | | 1.28 | 1.55 | | 0.262 | pCi/g | 12/21/20 13:06 | 01/11/21 09:44 | 1 |
| Protactinium-231 | 0.494 U | | 2.00 | 2.00 | | 2.13 | pCi/g | 12/21/20 13:06 | 01/11/21 09:44 | 1 |
| Protactinium-234 | 0.266 | | 0.132 | 0.135 | | 0.0643 | pCi/g | 12/21/20 13:06 | 01/11/21 09:44 | 1 |
| Radium-226 | 0.357 | | 0.108 | 0.114 | 0.200 | 0.0417 | pCi/g | 12/21/20 13:06 | 01/11/21 09:44 | 1 |
| Radium-228 | 0.505 | | 0.186 | 0.193 | | 0.0846 | pCi/g | 12/21/20 13:06 | 01/11/21 09:44 | 1 |
| Thallium-208 | 0.153 | | 0.0543 | 0.0566 | | 0.0196 | pCi/g | 12/21/20 13:06 | 01/11/21 09:44 | 1 |
| Thorium 228 | 0.503 | | 0.0910 | 0.112 | | 0.0395 | pCi/g | 12/21/20 13:06 | 01/11/21 09:44 | 1 |
| Thorium-232 | 0.505 | | 0.186 | 0.193 | | 0.0846 | pCi/g | 12/21/20 13:06 | 01/11/21 09:44 | 1 |
| Thorium-234 | -0.435 U | | 0.909 | 0.911 | | 0.738 | pCi/g | 12/21/20 13:06 | 01/11/21 09:44 | 1 |
| Uranium-235 | -0.149 U | | 0.375 | 0.375 | | 0.303 | pCi/g | 12/21/20 13:06 | 01/11/21 09:44 | 1 |
| Uranium-238 | -0.435 U | | 0.909 | 0.911 | | 0.738 | pCi/g | 12/21/20 13:06 | 01/11/21 09:44 | 1 |

Eurofins TestAmerica, St. Louis

Client Sample Results

Client: Aptim Federal Services LLC
 Project/Site: HPNS-Parcel G 501197

Job ID: 160-40800-1
 SDG: GJ46599746

Client Sample ID: HPPG-ESU-TU124A-008
 Date Collected: 12/10/20 11:17
 Date Received: 12/15/20 09:24

Lab Sample ID: 160-40800-8
 Matrix: Solid

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

| Analyte | Result | Qualifier | Count | Total | LOQ | DLC | Unit | Prepared | Analyzed | Dil Fac |
|--------------------|--------------|-----------|---------|---------|--------|--------|-------|----------------|----------------|---------|
| | | | Uncert. | (2σ+/-) | | | | | | |
| Actinium 228 | 0.259 | | 0.226 | 0.227 | | 0.115 | pCi/g | 12/21/20 13:06 | 01/11/21 09:42 | 1 |
| Actinium-227 | -0.0273 | U | 0.543 | 0.543 | | 0.297 | pCi/g | 12/21/20 13:06 | 01/11/21 09:42 | 1 |
| Bismuth-212 | 0.197 | U | 0.683 | 0.683 | | 0.544 | pCi/g | 12/21/20 13:06 | 01/11/21 09:42 | 1 |
| Bismuth-214 | 0.394 | | 0.120 | 0.127 | | 0.0376 | pCi/g | 12/21/20 13:06 | 01/11/21 09:42 | 1 |
| Cesium-137 | 0.0234 | U | 0.0548 | 0.0548 | 0.0700 | 0.0429 | pCi/g | 12/21/20 13:06 | 01/11/21 09:42 | 1 |
| Lead-210 | -0.923 | U | 0.930 | 0.936 | | 1.35 | pCi/g | 12/21/20 13:06 | 01/11/21 09:42 | 1 |
| Lead-212 | 0.362 | | 0.0879 | 0.0996 | | 0.0525 | pCi/g | 12/21/20 13:06 | 01/11/21 09:42 | 1 |
| Lead-214 | 0.482 | | 0.119 | 0.129 | | 0.0387 | pCi/g | 12/21/20 13:06 | 01/11/21 09:42 | 1 |
| Potassium-40 | 6.97 | | 1.35 | 1.53 | | 0.350 | pCi/g | 12/21/20 13:06 | 01/11/21 09:42 | 1 |
| Protactinium-231 | 0.000 | U | 0.580 | 0.580 | | 1.70 | pCi/g | 12/21/20 13:06 | 01/11/21 09:42 | 1 |
| Protactinium-234 | 0.0327 | U | 0.0741 | 0.0742 | | 0.179 | pCi/g | 12/21/20 13:06 | 01/11/21 09:42 | 1 |
| Radium-226 | 0.394 | | 0.120 | 0.127 | 0.200 | 0.0376 | pCi/g | 12/21/20 13:06 | 01/11/21 09:42 | 1 |
| Radium-228 | 0.259 | | 0.226 | 0.227 | | 0.115 | pCi/g | 12/21/20 13:06 | 01/11/21 09:42 | 1 |
| Thallium-208 | 0.193 | | 0.0666 | 0.0696 | | 0.0242 | pCi/g | 12/21/20 13:06 | 01/11/21 09:42 | 1 |
| Thorium 228 | 0.362 | | 0.0879 | 0.0996 | | 0.0525 | pCi/g | 12/21/20 13:06 | 01/11/21 09:42 | 1 |
| Thorium-232 | 0.259 | | 0.226 | 0.227 | | 0.115 | pCi/g | 12/21/20 13:06 | 01/11/21 09:42 | 1 |
| Thorium-234 | 0.0260 | U | 1.26 | 1.26 | | 1.04 | pCi/g | 12/21/20 13:06 | 01/11/21 09:42 | 1 |
| Uranium-235 | 0.122 | U | 0.211 | 0.212 | | 0.302 | pCi/g | 12/21/20 13:06 | 01/11/21 09:42 | 1 |
| Uranium-238 | 0.0260 | U | 1.26 | 1.26 | | 1.04 | pCi/g | 12/21/20 13:06 | 01/11/21 09:42 | 1 |

Client Sample ID: HPPG-ESU-TU124A-009

Date Collected: 12/10/20 11:19
 Date Received: 12/15/20 09:24

Lab Sample ID: 160-40800-9

Matrix: Solid

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

| Analyte | Result | Qualifier | Count | Total | LOQ | DLC | Unit | Prepared | Analyzed | Dil Fac |
|--------------------|--------------|-----------|---------|---------|--------|---------|-------|----------------|----------------|---------|
| | | | Uncert. | (2σ+/-) | | | | | | |
| Actinium 228 | 0.650 | | 0.181 | 0.193 | | 0.0366 | pCi/g | 12/21/20 13:06 | 01/11/21 10:14 | 1 |
| Actinium-227 | 0.466 | | 0.459 | 0.462 | | 0.243 | pCi/g | 12/21/20 13:06 | 01/11/21 10:14 | 1 |
| Bismuth-212 | 0.000 | U | 0.580 | 0.580 | | 0.625 | pCi/g | 12/21/20 13:06 | 01/11/21 10:14 | 1 |
| Bismuth-214 | 0.391 | | 0.129 | 0.135 | | 0.0528 | pCi/g | 12/21/20 13:06 | 01/11/21 10:14 | 1 |
| Cesium-137 | 0.0224 | | 0.0443 | 0.0443 | 0.0700 | 0.0219 | pCi/g | 12/21/20 13:06 | 01/11/21 10:14 | 1 |
| Lead-210 | -0.0127 | U | 1.71 | 1.71 | | 1.40 | pCi/g | 12/21/20 13:06 | 01/11/21 10:14 | 1 |
| Lead-212 | 0.328 | | 0.107 | 0.115 | | 0.0671 | pCi/g | 12/21/20 13:06 | 01/11/21 10:14 | 1 |
| Lead-214 | 0.547 | | 0.142 | 0.153 | | 0.0524 | pCi/g | 12/21/20 13:06 | 01/11/21 10:14 | 1 |
| Potassium-40 | 9.02 | | 1.56 | 1.81 | | 0.265 | pCi/g | 12/21/20 13:06 | 01/11/21 10:14 | 1 |
| Protactinium-231 | 0.000 | U | 0.407 | 0.407 | | 2.41 | pCi/g | 12/21/20 13:06 | 01/11/21 10:14 | 1 |
| Protactinium-234 | 0.103 | U | 0.279 | 0.279 | | 0.226 | pCi/g | 12/21/20 13:06 | 01/11/21 10:14 | 1 |
| Radium-226 | 0.391 | | 0.129 | 0.135 | 0.200 | 0.0528 | pCi/g | 12/21/20 13:06 | 01/11/21 10:14 | 1 |
| Radium-228 | 0.650 | | 0.181 | 0.193 | | 0.0366 | pCi/g | 12/21/20 13:06 | 01/11/21 10:14 | 1 |
| Thallium-208 | 0.225 | | 0.0579 | 0.0625 | | 0.00862 | pCi/g | 12/21/20 13:06 | 01/11/21 10:14 | 1 |
| Thorium 228 | 0.328 | | 0.107 | 0.115 | | 0.0671 | pCi/g | 12/21/20 13:06 | 01/11/21 10:14 | 1 |
| Thorium-232 | 0.650 | | 0.181 | 0.193 | | 0.0366 | pCi/g | 12/21/20 13:06 | 01/11/21 10:14 | 1 |
| Thorium-234 | -0.442 | U | 0.961 | 0.962 | | 1.11 | pCi/g | 12/21/20 13:06 | 01/11/21 10:14 | 1 |
| Uranium-235 | 0.0931 | U | 0.200 | 0.200 | | 0.435 | pCi/g | 12/21/20 13:06 | 01/11/21 10:14 | 1 |
| Uranium-238 | -0.442 | U | 0.961 | 0.962 | | 1.11 | pCi/g | 12/21/20 13:06 | 01/11/21 10:14 | 1 |

Eurofins TestAmerica, St. Louis

Client Sample Results

Client: Aptim Federal Services LLC
 Project/Site: HPNS-Parcel G 501197

Job ID: 160-40800-1
 SDG: GJ46599746

Client Sample ID: HPPG-ESU-TU124A-010

Lab Sample ID: 160-40800-10

Date Collected: 12/10/20 11:21

Matrix: Solid

Date Received: 12/15/20 09:24

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

| Analyte | Result | Qualifier | Count | Total | LOQ | DLC | Unit | Prepared | Analyzed | Dil Fac |
|--------------------|--------------|-----------|---------|---------|--------|--------|-------|----------------|----------------|---------|
| | | | (2σ+/-) | (2σ+/-) | | | | | | |
| Actinium 228 | 0.415 | | 0.251 | 0.254 | | 0.115 | pCi/g | 12/21/20 13:06 | 01/11/21 10:15 | 1 |
| Actinium-227 | 0.0689 | U | 0.531 | 0.531 | | 0.328 | pCi/g | 12/21/20 13:06 | 01/11/21 10:15 | 1 |
| Bismuth-212 | 0.324 | U | 0.567 | 0.568 | | 0.431 | pCi/g | 12/21/20 13:06 | 01/11/21 10:15 | 1 |
| Bismuth-214 | 0.517 | | 0.151 | 0.160 | | 0.0550 | pCi/g | 12/21/20 13:06 | 01/11/21 10:15 | 1 |
| Cesium-137 | 0.0273 | U | 0.0573 | 0.0573 | 0.0700 | 0.0447 | pCi/g | 12/21/20 13:06 | 01/11/21 10:15 | 1 |
| Lead-210 | 1.04 | | 1.22 | 1.22 | | 0.819 | pCi/g | 12/21/20 13:06 | 01/11/21 10:15 | 1 |
| Lead-212 | 0.462 | | 0.0889 | 0.107 | | 0.0412 | pCi/g | 12/21/20 13:06 | 01/11/21 10:15 | 1 |
| Lead-214 | 0.413 | | 0.0923 | 0.102 | | 0.0469 | pCi/g | 12/21/20 13:06 | 01/11/21 10:15 | 1 |
| Potassium-40 | 9.40 | | 1.34 | 1.65 | | 0.268 | pCi/g | 12/21/20 13:06 | 01/11/21 10:15 | 1 |
| Protactinium-231 | 0.523 | U | 2.13 | 2.13 | | 2.16 | pCi/g | 12/21/20 13:06 | 01/11/21 10:15 | 1 |
| Protactinium-234 | 0.115 | U | 0.224 | 0.225 | | 0.204 | pCi/g | 12/21/20 13:06 | 01/11/21 10:15 | 1 |
| Radium-226 | 0.517 | | 0.151 | 0.160 | 0.200 | 0.0550 | pCi/g | 12/21/20 13:06 | 01/11/21 10:15 | 1 |
| Radium-228 | 0.415 | | 0.251 | 0.254 | | 0.115 | pCi/g | 12/21/20 13:06 | 01/11/21 10:15 | 1 |
| Thallium-208 | 0.187 | | 0.0491 | 0.0528 | | 0.0142 | pCi/g | 12/21/20 13:06 | 01/11/21 10:15 | 1 |
| Thorium 228 | 0.462 | | 0.0889 | 0.107 | | 0.0412 | pCi/g | 12/21/20 13:06 | 01/11/21 10:15 | 1 |
| Thorium-232 | 0.415 | | 0.251 | 0.254 | | 0.115 | pCi/g | 12/21/20 13:06 | 01/11/21 10:15 | 1 |
| Thorium-234 | 0.668 | | 0.506 | 0.512 | | 0.384 | pCi/g | 12/21/20 13:06 | 01/11/21 10:15 | 1 |
| Uranium-235 | 0.154 | U | 0.363 | 0.363 | | 0.379 | pCi/g | 12/21/20 13:06 | 01/11/21 10:15 | 1 |
| Uranium-238 | 0.668 | | 0.506 | 0.512 | | 0.384 | pCi/g | 12/21/20 13:06 | 01/11/21 10:15 | 1 |

Client Sample ID: HPPG-ESU-TU124A-011

Lab Sample ID: 160-40800-11

Date Collected: 12/10/20 11:23

Matrix: Solid

Date Received: 12/15/20 09:24

Method: 905 - Strontium-90 (GFPC)

| Analyte | Result | Qualifier | Count | Total | LOQ | DLC | Unit | Prepared | Analyzed | Dil Fac |
|----------------|---------------|------------------|---------------|---------|-------|-------|-------|-----------------|-----------------|----------------|
| | | | (2σ+/-) | (2σ+/-) | | | | | | |
| Strontium-90 | -0.129 | U | 0.174 | 0.174 | 0.331 | 0.152 | pCi/g | 12/28/20 18:50 | 01/06/21 17:43 | 1 |
| Carrier | %Yield | Qualifier | Limits | | | | | Prepared | Analyzed | Dil Fac |
| Sr Carrier | 95.5 | | 40 - 110 | | | | | 12/28/20 18:50 | 01/06/21 17:43 | 1 |
| Y Carrier | 90.5 | | 40 - 110 | | | | | 12/28/20 18:50 | 01/06/21 17:43 | 1 |

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

| Analyte | Result | Qualifier | Count | Total | LOQ | DLC | Unit | Prepared | Analyzed | Dil Fac |
|--------------------|--------------|-----------|---------|---------|--------|--------|-------|----------------|----------------|---------|
| | | | (2σ+/-) | (2σ+/-) | | | | | | |
| Actinium 228 | 0.327 | | 0.132 | 0.137 | | 0.117 | pCi/g | 12/21/20 13:06 | 01/11/21 12:16 | 1 |
| Actinium-227 | -0.309 | U | 0.320 | 0.323 | | 0.343 | pCi/g | 12/21/20 13:06 | 01/11/21 12:16 | 1 |
| Bismuth-212 | -0.462 | U | 0.763 | 0.765 | | 0.595 | pCi/g | 12/21/20 13:06 | 01/11/21 12:16 | 1 |
| Bismuth-214 | 0.418 | | 0.113 | 0.121 | | 0.0396 | pCi/g | 12/21/20 13:06 | 01/11/21 12:16 | 1 |
| Cesium-137 | -0.0201 | U | 0.0311 | 0.0311 | 0.0700 | 0.0366 | pCi/g | 12/21/20 13:06 | 01/11/21 12:16 | 1 |
| Lead-210 | -0.0192 | U | 1.24 | 1.24 | | 1.02 | pCi/g | 12/21/20 13:06 | 01/11/21 12:16 | 1 |
| Lead-212 | 0.571 | | 0.0856 | 0.113 | | 0.0308 | pCi/g | 12/21/20 13:06 | 01/11/21 12:16 | 1 |
| Lead-214 | 0.423 | | 0.0945 | 0.104 | | 0.0383 | pCi/g | 12/21/20 13:06 | 01/11/21 12:16 | 1 |
| Potassium-40 | 8.19 | | 1.20 | 1.46 | | 0.264 | pCi/g | 12/21/20 13:06 | 01/11/21 12:16 | 1 |
| Protactinium-231 | 0.317 | U | 1.19 | 1.19 | | 1.88 | pCi/g | 12/21/20 13:06 | 01/11/21 12:16 | 1 |

Eurofins TestAmerica, St. Louis

Client Sample Results

Client: Aptim Federal Services LLC
Project/Site: HPNS-Parcel G 501197

Job ID: 160-40800-1
SDG: GJ46599746

Client Sample ID: HPPG-ESU-TU124A-011

Lab Sample ID: 160-40800-11

Date Collected: 12/10/20 11:23

Matrix: Solid

Date Received: 12/15/20 09:24

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS) (Continued)

| Analyte | Result | Qualifier | Count | Total | LOQ | DLC | Unit | Prepared | Analyzed | Dil Fac |
|------------------|------------|-----------|-----------|-----------|-------|--------|-------|----------------|----------------|---------|
| | | | (2σ+/-) | (2σ+/-) | | | | | | |
| Protactinium-234 | -0.0000228 | U | 0.0000396 | 0.0000397 | | 0.218 | pCi/g | 12/21/20 13:06 | 01/11/21 12:16 | 1 |
| Radium-226 | 0.418 | | 0.113 | 0.121 | 0.200 | 0.0396 | pCi/g | 12/21/20 13:06 | 01/11/21 12:16 | 1 |
| Radium-228 | 0.327 | | 0.132 | 0.137 | | 0.117 | pCi/g | 12/21/20 13:06 | 01/11/21 12:16 | 1 |
| Thallium-208 | 0.182 | | 0.0463 | 0.0500 | | 0.0104 | pCi/g | 12/21/20 13:06 | 01/11/21 12:16 | 1 |
| Thorium 228 | 0.571 | | 0.0856 | 0.113 | | 0.0308 | pCi/g | 12/21/20 13:06 | 01/11/21 12:16 | 1 |
| Thorium-232 | 0.327 | | 0.132 | 0.137 | | 0.117 | pCi/g | 12/21/20 13:06 | 01/11/21 12:16 | 1 |
| Thorium-234 | 0.287 | U | 0.556 | 0.557 | | 0.318 | pCi/g | 12/21/20 13:06 | 01/11/21 12:16 | 1 |
| Uranium-235 | -0.178 | U | 0.496 | 0.497 | | 0.404 | pCi/g | 12/21/20 13:06 | 01/11/21 12:16 | 1 |
| Uranium-238 | 0.287 | U | 0.556 | 0.557 | | 0.318 | pCi/g | 12/21/20 13:06 | 01/11/21 12:16 | 1 |

Client Sample ID: HPPG-ESU-TU124A-012

Lab Sample ID: 160-40800-12

Date Collected: 12/10/20 11:25

Matrix: Solid

Date Received: 12/15/20 09:24

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

| Analyte | Result | Qualifier | Count | Total | LOQ | DLC | Unit | Prepared | Analyzed | Dil Fac |
|------------------|---------|-----------|---------|---------|--------|--------|-------|----------------|----------------|---------|
| | | | (2σ+/-) | (2σ+/-) | | | | | | |
| Actinium 228 | 0.424 | | 0.179 | 0.184 | | 0.146 | pCi/g | 12/21/20 13:06 | 01/11/21 10:16 | 1 |
| Actinium-227 | 0.222 | U | 0.575 | 0.575 | | 0.348 | pCi/g | 12/21/20 13:06 | 01/11/21 10:16 | 1 |
| Bismuth-212 | 0.313 | U | 0.833 | 0.834 | | 0.661 | pCi/g | 12/21/20 13:06 | 01/11/21 10:16 | 1 |
| Bismuth-214 | 0.471 | | 0.137 | 0.145 | | 0.0562 | pCi/g | 12/21/20 13:06 | 01/11/21 10:16 | 1 |
| Cesium-137 | -0.0285 | U | 0.0738 | 0.0739 | 0.0700 | 0.0586 | pCi/g | 12/21/20 13:06 | 01/11/21 10:16 | 1 |
| Lead-210 | 1.92 | | 1.56 | 1.58 | | 0.953 | pCi/g | 12/21/20 13:06 | 01/11/21 10:16 | 1 |
| Lead-212 | 0.482 | | 0.0944 | 0.107 | | 0.0440 | pCi/g | 12/21/20 13:06 | 01/11/21 10:16 | 1 |
| Lead-214 | 0.465 | | 0.135 | 0.143 | | 0.0589 | pCi/g | 12/21/20 13:06 | 01/11/21 10:16 | 1 |
| Potassium-40 | 9.98 | | 1.39 | 1.72 | | 0.113 | pCi/g | 12/21/20 13:06 | 01/11/21 10:16 | 1 |
| Protactinium-231 | -0.839 | U | 2.77 | 2.77 | | 2.26 | pCi/g | 12/21/20 13:06 | 01/11/21 10:16 | 1 |
| Protactinium-234 | 0.104 | U | 0.314 | 0.314 | | 0.256 | pCi/g | 12/21/20 13:06 | 01/11/21 10:16 | 1 |
| Radium-226 | 0.471 | | 0.137 | 0.145 | 0.200 | 0.0562 | pCi/g | 12/21/20 13:06 | 01/11/21 10:16 | 1 |
| Radium-228 | 0.424 | | 0.179 | 0.184 | | 0.146 | pCi/g | 12/21/20 13:06 | 01/11/21 10:16 | 1 |
| Thallium-208 | 0.112 | | 0.0745 | 0.0754 | | 0.0368 | pCi/g | 12/21/20 13:06 | 01/11/21 10:16 | 1 |
| Thorium 228 | 0.482 | | 0.0944 | 0.107 | | 0.0440 | pCi/g | 12/21/20 13:06 | 01/11/21 10:16 | 1 |
| Thorium-232 | 0.424 | | 0.179 | 0.184 | | 0.146 | pCi/g | 12/21/20 13:06 | 01/11/21 10:16 | 1 |
| Thorium-234 | 1.42 | | 0.564 | 0.586 | | 0.383 | pCi/g | 12/21/20 13:06 | 01/11/21 10:16 | 1 |
| Uranium-235 | 0.000 | U | 0.228 | 0.228 | | 0.440 | pCi/g | 12/21/20 13:06 | 01/11/21 10:16 | 1 |
| Uranium-238 | 1.42 | | 0.564 | 0.586 | | 0.383 | pCi/g | 12/21/20 13:06 | 01/11/21 10:16 | 1 |

Client Sample ID: HPPG-ESU-TU124A-013

Lab Sample ID: 160-40800-13

Date Collected: 12/10/20 11:27

Matrix: Solid

Date Received: 12/15/20 09:24

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

| Analyte | Result | Qualifier | Count | Total | LOQ | DLC | Unit | Prepared | Analyzed | Dil Fac |
|--------------|--------|-----------|---------|---------|-----|--------|-------|----------------|----------------|---------|
| | | | (2σ+/-) | (2σ+/-) | | | | | | |
| Actinium 228 | 0.508 | | 0.167 | 0.174 | | 0.0466 | pCi/g | 12/21/20 13:06 | 01/11/21 10:17 | 1 |
| Actinium-227 | 0.119 | U | 0.338 | 0.338 | | 0.261 | pCi/g | 12/21/20 13:06 | 01/11/21 10:17 | 1 |

Eurofins TestAmerica, St. Louis

Client Sample Results

Client: Aptim Federal Services LLC
 Project/Site: HPNS-Parcel G 501197

Job ID: 160-40800-1
 SDG: GJ46599746

Client Sample ID: HPPG-ESU-TU124A-013

Lab Sample ID: 160-40800-13

Date Collected: 12/10/20 11:27

Matrix: Solid

Date Received: 12/15/20 09:24

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS) (Continued)

| Analyte | Result | Qualifier | Count | Total | LOQ | DLC | Unit | Prepared | Analyzed | Dil Fac |
|--------------------|--------------|-----------|--------------------|--------------------|--------|--------|-------|----------------|----------------|---------|
| | | | Uncert. (2σ+/-) | Uncert. (2σ+/-) | | | | | | |
| Bismuth-212 | 0.467 | U | 0.831 | 0.832 | | 0.658 | pCi/g | 12/21/20 13:06 | 01/11/21 10:17 | 1 |
| Bismuth-214 | 0.387 | | 0.107 | 0.114 | | 0.0374 | pCi/g | 12/21/20 13:06 | 01/11/21 10:17 | 1 |
| Cesium-137 | -0.0329 | U | 0.0531 | 0.0532 | 0.0700 | 0.0413 | pCi/g | 12/21/20 13:06 | 01/11/21 10:17 | 1 |
| Lead-210 | -0.271 | U | 1.05 | 1.05 | | 0.850 | pCi/g | 12/21/20 13:06 | 01/11/21 10:17 | 1 |
| Lead-212 | 0.367 | | 0.0746 | 0.0884 | | 0.0403 | pCi/g | 12/21/20 13:06 | 01/11/21 10:17 | 1 |
| Lead-214 | 0.444 | | 0.0819 | 0.0940 | | 0.0434 | pCi/g | 12/21/20 13:06 | 01/11/21 10:17 | 1 |
| Potassium-40 | 9.50 | | 1.13 | 1.49 | | 0.0785 | pCi/g | 12/21/20 13:06 | 01/11/21 10:17 | 1 |
| Protactinium-231 | 0.000 | U | 0.187 | 0.187 | | 1.53 | pCi/g | 12/21/20 13:06 | 01/11/21 10:17 | 1 |
| Protactinium-234 | 0.0566 | U | 0.196 | 0.196 | | 0.181 | pCi/g | 12/21/20 13:06 | 01/11/21 10:17 | 1 |
| Radium-226 | 0.387 | | 0.107 | 0.114 | 0.200 | 0.0374 | pCi/g | 12/21/20 13:06 | 01/11/21 10:17 | 1 |
| Radium-228 | 0.508 | | 0.167 | 0.174 | | 0.0466 | pCi/g | 12/21/20 13:06 | 01/11/21 10:17 | 1 |
| Thallium-208 | 0.124 | | 0.0401 | 0.0421 | | 0.0142 | pCi/g | 12/21/20 13:06 | 01/11/21 10:17 | 1 |
| Thorium 228 | 0.367 | | 0.0746 | 0.0884 | | 0.0403 | pCi/g | 12/21/20 13:06 | 01/11/21 10:17 | 1 |
| Thorium-232 | 0.508 | | 0.167 | 0.174 | | 0.0466 | pCi/g | 12/21/20 13:06 | 01/11/21 10:17 | 1 |
| Thorium-234 | 0.188 | U | 0.404 | 0.405 | | 0.801 | pCi/g | 12/21/20 13:06 | 01/11/21 10:17 | 1 |
| Uranium-235 | 0.0888 | U | 0.162 | 0.163 | | 0.311 | pCi/g | 12/21/20 13:06 | 01/11/21 10:17 | 1 |
| Uranium-238 | 0.188 | U | 0.404 | 0.405 | | 0.801 | pCi/g | 12/21/20 13:06 | 01/11/21 10:17 | 1 |

Client Sample ID: HPPG-ESU-TU124A-014

Lab Sample ID: 160-40800-14

Date Collected: 12/10/20 11:29

Matrix: Solid

Date Received: 12/15/20 09:24

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

| Analyte | Result | Qualifier | Count | Total | LOQ | DLC | Unit | Prepared | Analyzed | Dil Fac |
|--------------------|--------------|-----------|--------------------|--------------------|--------|--------|-------|----------------|----------------|---------|
| | | | Uncert. (2σ+/-) | Uncert. (2σ+/-) | | | | | | |
| Actinium 228 | 0.651 | | 0.196 | 0.209 | | 0.0836 | pCi/g | 12/21/20 13:06 | 01/11/21 10:15 | 1 |
| Actinium-227 | -0.409 | U | 0.780 | 0.781 | | 0.470 | pCi/g | 12/21/20 13:06 | 01/11/21 10:15 | 1 |
| Bismuth-212 | 0.199 | U | 0.804 | 0.804 | | 0.642 | pCi/g | 12/21/20 13:06 | 01/11/21 10:15 | 1 |
| Bismuth-214 | 0.477 | | 0.138 | 0.149 | | 0.0496 | pCi/g | 12/21/20 13:06 | 01/11/21 10:15 | 1 |
| Cesium-137 | 0.0399 | U | 0.0702 | 0.0703 | 0.0700 | 0.0540 | pCi/g | 12/21/20 13:06 | 01/11/21 10:15 | 1 |
| Lead-210 | 1.34 | U | 1.98 | 1.98 | | 1.56 | pCi/g | 12/21/20 13:06 | 01/11/21 10:15 | 1 |
| Lead-212 | 0.412 | | 0.104 | 0.115 | | 0.0581 | pCi/g | 12/21/20 13:06 | 01/11/21 10:15 | 1 |
| Lead-214 | 0.529 | | 0.134 | 0.147 | | 0.0649 | pCi/g | 12/21/20 13:06 | 01/11/21 10:15 | 1 |
| Potassium-40 | 8.85 | | 1.49 | 1.80 | | 0.330 | pCi/g | 12/21/20 13:06 | 01/11/21 10:15 | 1 |
| Protactinium-231 | -0.991 | U | 3.26 | 3.26 | | 2.65 | pCi/g | 12/21/20 13:06 | 01/11/21 10:15 | 1 |
| Protactinium-234 | -0.0435 | U | 0.132 | 0.132 | | 0.307 | pCi/g | 12/21/20 13:06 | 01/11/21 10:15 | 1 |
| Radium-226 | 0.477 | | 0.138 | 0.149 | 0.200 | 0.0496 | pCi/g | 12/21/20 13:06 | 01/11/21 10:15 | 1 |
| Radium-228 | 0.651 | | 0.196 | 0.209 | | 0.0836 | pCi/g | 12/21/20 13:06 | 01/11/21 10:15 | 1 |
| Thallium-208 | 0.253 | | 0.0731 | 0.0788 | | 0.0192 | pCi/g | 12/21/20 13:06 | 01/11/21 10:15 | 1 |
| Thorium 228 | 0.412 | | 0.104 | 0.115 | | 0.0581 | pCi/g | 12/21/20 13:06 | 01/11/21 10:15 | 1 |
| Thorium-232 | 0.651 | | 0.196 | 0.209 | | 0.0836 | pCi/g | 12/21/20 13:06 | 01/11/21 10:15 | 1 |
| Thorium-234 | 0.383 | U | 0.464 | 0.466 | | 0.416 | pCi/g | 12/21/20 13:06 | 01/11/21 10:15 | 1 |
| Uranium-235 | 0.0216 | U | 0.262 | 0.262 | | 0.543 | pCi/g | 12/21/20 13:06 | 01/11/21 10:15 | 1 |
| Uranium-238 | 0.383 | U | 0.464 | 0.466 | | 0.416 | pCi/g | 12/21/20 13:06 | 01/11/21 10:15 | 1 |

Eurofins TestAmerica, St. Louis

Client Sample Results

Client: Aptim Federal Services LLC
 Project/Site: HPNS-Parcel G 501197

Job ID: 160-40800-1
 SDG: GJ46599746

Client Sample ID: HPPG-ESU-TU124A-015
 Date Collected: 12/10/20 11:31
 Date Received: 12/15/20 09:24

Lab Sample ID: 160-40800-15
 Matrix: Solid

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

| Analyte | Result | Qualifier | Count | Total | LOQ | DLC | Unit | Prepared | Analyzed | Dil Fac |
|--------------------|--------------|-----------|---------|---------|--------|--------|-------|----------------|----------------|---------|
| | | | (2σ+/-) | (2σ+/-) | | | | | | |
| Actinium 228 | 0.431 | | 0.130 | 0.137 | | 0.0659 | pCi/g | 12/21/20 13:06 | 01/11/21 10:19 | 1 |
| Actinium-227 | 0.154 | U | 0.338 | 0.338 | | 0.272 | pCi/g | 12/21/20 13:06 | 01/11/21 10:19 | 1 |
| Bismuth-212 | -0.322 | U | 1.15 | 1.15 | | 0.619 | pCi/g | 12/21/20 13:06 | 01/11/21 10:19 | 1 |
| Bismuth-214 | 0.390 | | 0.119 | 0.125 | | 0.0361 | pCi/g | 12/21/20 13:06 | 01/11/21 10:19 | 1 |
| Cesium-137 | -0.0552 | U | 0.0791 | 0.0793 | 0.0700 | 0.0616 | pCi/g | 12/21/20 13:06 | 01/11/21 10:19 | 1 |
| Lead-210 | 0.236 | U | | 1.17 | | 0.942 | pCi/g | 12/21/20 13:06 | 01/11/21 10:19 | 1 |
| Lead-212 | 0.403 | | 0.0870 | 0.101 | | 0.0489 | pCi/g | 12/21/20 13:06 | 01/11/21 10:19 | 1 |
| Lead-214 | 0.518 | | 0.119 | 0.131 | | 0.0380 | pCi/g | 12/21/20 13:06 | 01/11/21 10:19 | 1 |
| Potassium-40 | 9.74 | | 1.41 | 1.73 | | 0.191 | pCi/g | 12/21/20 13:06 | 01/11/21 10:19 | 1 |
| Protactinium-231 | 0.846 | U | 1.70 | 1.70 | | 1.86 | pCi/g | 12/21/20 13:06 | 01/11/21 10:19 | 1 |
| Protactinium-234 | 0.0856 | U | 0.116 | 0.117 | | 0.189 | pCi/g | 12/21/20 13:06 | 01/11/21 10:19 | 1 |
| Radium-226 | 0.390 | | 0.119 | 0.125 | 0.200 | 0.0361 | pCi/g | 12/21/20 13:06 | 01/11/21 10:19 | 1 |
| Radium-228 | 0.431 | | 0.130 | 0.137 | | 0.0659 | pCi/g | 12/21/20 13:06 | 01/11/21 10:19 | 1 |
| Thallium-208 | 0.198 | | 0.0744 | 0.0772 | | 0.0284 | pCi/g | 12/21/20 13:06 | 01/11/21 10:19 | 1 |
| Thorium 228 | 0.403 | | 0.0870 | 0.101 | | 0.0489 | pCi/g | 12/21/20 13:06 | 01/11/21 10:19 | 1 |
| Thorium-232 | 0.431 | | 0.130 | 0.137 | | 0.0659 | pCi/g | 12/21/20 13:06 | 01/11/21 10:19 | 1 |
| Thorium-234 | -0.910 | U | 0.667 | 0.674 | | 1.26 | pCi/g | 12/21/20 13:06 | 01/11/21 10:19 | 1 |
| Uranium-235 | 0.0337 | U | 0.393 | 0.393 | | 0.323 | pCi/g | 12/21/20 13:06 | 01/11/21 10:19 | 1 |
| Uranium-238 | -0.910 | U | 0.667 | 0.674 | | 1.26 | pCi/g | 12/21/20 13:06 | 01/11/21 10:19 | 1 |

Client Sample ID: HPPG-ESU-TU124A-016

Lab Sample ID: 160-40800-16

Date Collected: 12/10/20 11:33

Matrix: Solid

Date Received: 12/15/20 09:24

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

| Analyte | Result | Qualifier | Count | Total | LOQ | DLC | Unit | Prepared | Analyzed | Dil Fac |
|--------------------|--------------|-----------|---------|---------|--------|--------|-------|----------------|----------------|---------|
| | | | (2σ+/-) | (2σ+/-) | | | | | | |
| Actinium 228 | 0.523 | | 0.149 | 0.158 | | 0.0468 | pCi/g | 12/21/20 13:06 | 01/11/21 10:19 | 1 |
| Actinium-227 | 0.157 | U | 0.326 | 0.326 | | 0.251 | pCi/g | 12/21/20 13:06 | 01/11/21 10:19 | 1 |
| Bismuth-212 | 0.165 | U | 0.553 | 0.553 | | 0.437 | pCi/g | 12/21/20 13:06 | 01/11/21 10:19 | 1 |
| Bismuth-214 | 0.392 | | 0.0992 | 0.107 | | 0.0317 | pCi/g | 12/21/20 13:06 | 01/11/21 10:19 | 1 |
| Cesium-137 | -0.0429 | U | 0.0695 | 0.0696 | 0.0700 | 0.0542 | pCi/g | 12/21/20 13:06 | 01/11/21 10:19 | 1 |
| Lead-210 | 0.488 | U | | 1.22 | | 0.864 | pCi/g | 12/21/20 13:06 | 01/11/21 10:19 | 1 |
| Lead-212 | 0.431 | | 0.0886 | 0.105 | | 0.0455 | pCi/g | 12/21/20 13:06 | 01/11/21 10:19 | 1 |
| Lead-214 | 0.502 | | 0.113 | 0.124 | | 0.0449 | pCi/g | 12/21/20 13:06 | 01/11/21 10:19 | 1 |
| Potassium-40 | 9.66 | | 1.31 | 1.64 | | 0.245 | pCi/g | 12/21/20 13:06 | 01/11/21 10:19 | 1 |
| Protactinium-231 | -0.332 | U | 2.53 | 2.53 | | 2.07 | pCi/g | 12/21/20 13:06 | 01/11/21 10:19 | 1 |
| Protactinium-234 | -0.0198 | U | 0.0483 | 0.0484 | | 0.174 | pCi/g | 12/21/20 13:06 | 01/11/21 10:19 | 1 |
| Radium-226 | 0.392 | | 0.0992 | 0.107 | 0.200 | 0.0317 | pCi/g | 12/21/20 13:06 | 01/11/21 10:19 | 1 |
| Radium-228 | 0.523 | | 0.149 | 0.158 | | 0.0468 | pCi/g | 12/21/20 13:06 | 01/11/21 10:19 | 1 |
| Thallium-208 | 0.177 | | 0.0705 | 0.0728 | | 0.0313 | pCi/g | 12/21/20 13:06 | 01/11/21 10:19 | 1 |
| Thorium 228 | 0.431 | | 0.0886 | 0.105 | | 0.0455 | pCi/g | 12/21/20 13:06 | 01/11/21 10:19 | 1 |
| Thorium-232 | 0.523 | | 0.149 | 0.158 | | 0.0468 | pCi/g | 12/21/20 13:06 | 01/11/21 10:19 | 1 |
| Thorium-234 | -0.323 | U | 0.545 | 0.546 | | 0.741 | pCi/g | 12/21/20 13:06 | 01/11/21 10:19 | 1 |
| Uranium-235 | 0.0931 | U | 0.211 | 0.211 | | 0.261 | pCi/g | 12/21/20 13:06 | 01/11/21 10:19 | 1 |
| Uranium-238 | -0.323 | U | 0.545 | 0.546 | | 0.741 | pCi/g | 12/21/20 13:06 | 01/11/21 10:19 | 1 |

Eurofins TestAmerica, St. Louis

Client Sample Results

Client: Aptim Federal Services LLC
 Project/Site: HPNS-Parcel G 501197

Job ID: 160-40800-1
 SDG: GJ46599746

Client Sample ID: HPPG-ESU-TU124A-017

Lab Sample ID: 160-40800-17

Date Collected: 12/10/20 11:35

Matrix: Solid

Date Received: 12/15/20 09:24

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

| Analyte | Result | Qualifier | Count | Total | LOQ | DLC | Unit | Prepared | Analyzed | Dil Fac |
|---------------------|--------------|-----------|---------|---------|--------|--------|-------|----------------|----------------|---------|
| | | | (2σ+/-) | (2σ+/-) | | | | | | |
| Actinium 228 | 0.457 | | 0.223 | 0.228 | | 0.0835 | pCi/g | 12/21/20 13:06 | 01/11/21 12:18 | 1 |
| Actinium-227 | 0.186 | U | 0.368 | 0.369 | | 0.322 | pCi/g | 12/21/20 13:06 | 01/11/21 12:18 | 1 |
| Bismuth-212 | 0.0467 | U | 1.37 | 1.37 | | 1.13 | pCi/g | 12/21/20 13:06 | 01/11/21 12:18 | 1 |
| Bismuth-214 | 0.501 | | 0.133 | 0.143 | | 0.0418 | pCi/g | 12/21/20 13:06 | 01/11/21 12:18 | 1 |
| Cesium-137 | -0.0198 | U | 0.0682 | 0.0682 | 0.0700 | 0.0543 | pCi/g | 12/21/20 13:06 | 01/11/21 12:18 | 1 |
| Lead-210 | -0.486 | U | 1.73 | 1.73 | | 1.44 | pCi/g | 12/21/20 13:06 | 01/11/21 12:18 | 1 |
| Lead-212 | 0.407 | | 0.108 | 0.120 | | 0.0642 | pCi/g | 12/21/20 13:06 | 01/11/21 12:18 | 1 |
| Lead-214 | 0.428 | | 0.117 | 0.125 | | 0.0669 | pCi/g | 12/21/20 13:06 | 01/11/21 12:18 | 1 |
| Potassium-40 | 8.58 | | 1.47 | 1.72 | | 0.248 | pCi/g | 12/21/20 13:06 | 01/11/21 12:18 | 1 |
| Protactinium-231 | 0.000 | U | 0.121 | 0.121 | | 2.23 | pCi/g | 12/21/20 13:06 | 01/11/21 12:18 | 1 |
| Protactinium-234 | 0.0546 | U | 0.0860 | 0.0862 | | 0.245 | pCi/g | 12/21/20 13:06 | 01/11/21 12:18 | 1 |
| Radium-226 | 0.501 | | 0.133 | 0.143 | 0.200 | 0.0418 | pCi/g | 12/21/20 13:06 | 01/11/21 12:18 | 1 |
| Radium-228 | 0.457 | | 0.223 | 0.228 | | 0.0835 | pCi/g | 12/21/20 13:06 | 01/11/21 12:18 | 1 |
| Thallium-208 | 0.197 | | 0.0980 | 0.100 | | 0.0429 | pCi/g | 12/21/20 13:06 | 01/11/21 12:18 | 1 |
| Thorium 228 | 0.407 | | 0.108 | 0.120 | | 0.0642 | pCi/g | 12/21/20 13:06 | 01/11/21 12:18 | 1 |
| Thorium-232 | 0.457 | | 0.223 | 0.228 | | 0.0835 | pCi/g | 12/21/20 13:06 | 01/11/21 12:18 | 1 |
| Thorium-234 | 0.858 | | 0.697 | 0.703 | | 0.409 | pCi/g | 12/21/20 13:06 | 01/11/21 12:18 | 1 |
| Uranium-235 | 0.131 | U | 0.246 | 0.246 | | 0.427 | pCi/g | 12/21/20 13:06 | 01/11/21 12:18 | 1 |
| Uranium-238 | 0.858 | | 0.697 | 0.703 | | 0.409 | pCi/g | 12/21/20 13:06 | 01/11/21 12:18 | 1 |

Client Sample ID: HPPG-ESU-TU124A-018

Lab Sample ID: 160-40800-18

Date Collected: 12/10/20 11:37

Matrix: Solid

Date Received: 12/15/20 09:24

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

| Analyte | Result | Qualifier | Count | Total | LOQ | DLC | Unit | Prepared | Analyzed | Dil Fac |
|---------------------|--------------|-----------|----------|----------|--------|---------|-------|----------------|----------------|---------|
| | | | (2σ+/-) | (2σ+/-) | | | | | | |
| Actinium 228 | 0.332 | | 0.216 | 0.219 | | 0.101 | pCi/g | 12/21/20 13:06 | 01/11/21 12:18 | 1 |
| Actinium-227 | 0.156 | U | 0.300 | 0.301 | | 0.209 | pCi/g | 12/21/20 13:06 | 01/11/21 12:18 | 1 |
| Bismuth-212 | 0.288 | U | 0.548 | 0.549 | | 0.429 | pCi/g | 12/21/20 13:06 | 01/11/21 12:18 | 1 |
| Bismuth-214 | 0.362 | | 0.0967 | 0.104 | | 0.0373 | pCi/g | 12/21/20 13:06 | 01/11/21 12:18 | 1 |
| Cesium-137 | 0.00422 | U | 0.0494 | 0.0494 | 0.0700 | 0.0404 | pCi/g | 12/21/20 13:06 | 01/11/21 12:18 | 1 |
| Lead-210 | 0.0887 | U | 1.18 | 1.18 | | 0.964 | pCi/g | 12/21/20 13:06 | 01/11/21 12:18 | 1 |
| Lead-212 | 0.394 | | 0.0646 | 0.0823 | | 0.0264 | pCi/g | 12/21/20 13:06 | 01/11/21 12:18 | 1 |
| Lead-214 | 0.378 | | 0.0694 | 0.0798 | | 0.0469 | pCi/g | 12/21/20 13:06 | 01/11/21 12:18 | 1 |
| Potassium-40 | 7.98 | | 0.998 | 1.29 | | 0.0727 | pCi/g | 12/21/20 13:06 | 01/11/21 12:18 | 1 |
| Protactinium-231 | 0.000 | U | 0.141 | 0.141 | | 1.55 | pCi/g | 12/21/20 13:06 | 01/11/21 12:18 | 1 |
| Protactinium-234 | 0.000375 | U | 0.000752 | 0.000753 | | 0.181 | pCi/g | 12/21/20 13:06 | 01/11/21 12:18 | 1 |
| Radium-226 | 0.362 | | 0.0967 | 0.104 | 0.200 | 0.0373 | pCi/g | 12/21/20 13:06 | 01/11/21 12:18 | 1 |
| Radium-228 | 0.332 | | 0.216 | 0.219 | | 0.101 | pCi/g | 12/21/20 13:06 | 01/11/21 12:18 | 1 |
| Thallium-208 | 0.159 | | 0.0354 | 0.0390 | | 0.00450 | pCi/g | 12/21/20 13:06 | 01/11/21 12:18 | 1 |
| Thorium 228 | 0.394 | | 0.0646 | 0.0823 | | 0.0264 | pCi/g | 12/21/20 13:06 | 01/11/21 12:18 | 1 |
| Thorium-232 | 0.332 | | 0.216 | 0.219 | | 0.101 | pCi/g | 12/21/20 13:06 | 01/11/21 12:18 | 1 |
| Thorium-234 | 0.0705 | U | 0.149 | 0.149 | | 0.832 | pCi/g | 12/21/20 13:06 | 01/11/21 12:18 | 1 |
| Uranium-235 | 0.0317 | U | 0.218 | 0.218 | | 0.306 | pCi/g | 12/21/20 13:06 | 01/11/21 12:18 | 1 |
| Uranium-238 | 0.0705 | U | 0.149 | 0.149 | | 0.832 | pCi/g | 12/21/20 13:06 | 01/11/21 12:18 | 1 |

Eurofins TestAmerica, St. Louis

Client Sample Results

Client: Aptim Federal Services LLC
 Project/Site: HPNS-Parcel G 501197

Job ID: 160-40800-1
 SDG: GJ46599746

Client Sample ID: HPPG-ESU-TU124A-019

Lab Sample ID: 160-40800-19

Date Collected: 12/10/20 11:39

Matrix: Solid

Date Received: 12/15/20 09:24

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

| Analyte | Result | Qualifier | Count | Total | LOQ | DLC | Unit | Prepared | Analyzed | Dil Fac |
|--------------------|--------------|-----------|---------|---------|--------|--------|-------|----------------|----------------|---------|
| | | | (2σ+/-) | (2σ+/-) | | | | | | |
| Actinium 228 | 0.764 | | 0.223 | 0.236 | | 0.0374 | pCi/g | 12/22/20 09:41 | 01/12/21 06:11 | 1 |
| Actinium-227 | -0.273 | U | 0.656 | 0.656 | | 0.427 | pCi/g | 12/22/20 09:41 | 01/12/21 06:11 | 1 |
| Bismuth-212 | -0.373 | U | 0.954 | 0.955 | | 0.752 | pCi/g | 12/22/20 09:41 | 01/12/21 06:11 | 1 |
| Bismuth-214 | 0.603 | | 0.181 | 0.191 | | 0.0646 | pCi/g | 12/22/20 09:41 | 01/12/21 06:11 | 1 |
| Cesium-137 | 0.00969 | U | 0.0659 | 0.0659 | 0.0700 | 0.0533 | pCi/g | 12/22/20 09:41 | 01/12/21 06:11 | 1 |
| Lead-210 | -1.47 | U | 1.99 | 2.00 | | 1.69 | pCi/g | 12/22/20 09:41 | 01/12/21 06:11 | 1 |
| Lead-212 | 0.498 | | 0.0992 | 0.112 | | 0.0478 | pCi/g | 12/22/20 09:41 | 01/12/21 06:11 | 1 |
| Lead-214 | 0.548 | | 0.142 | 0.152 | | 0.0530 | pCi/g | 12/22/20 09:41 | 01/12/21 06:11 | 1 |
| Potassium-40 | 8.65 | | 1.55 | 1.78 | | 0.273 | pCi/g | 12/22/20 09:41 | 01/12/21 06:11 | 1 |
| Protactinium-231 | 0.617 | U | 1.96 | 1.96 | | 2.15 | pCi/g | 12/22/20 09:41 | 01/12/21 06:11 | 1 |
| Protactinium-234 | 0.0759 | U | 0.236 | 0.236 | | 0.209 | pCi/g | 12/22/20 09:41 | 01/12/21 06:11 | 1 |
| Radium-226 | 0.603 | | 0.181 | 0.191 | 0.200 | 0.0646 | pCi/g | 12/22/20 09:41 | 01/12/21 06:11 | 1 |
| Radium-228 | 0.764 | | 0.223 | 0.236 | | 0.0374 | pCi/g | 12/22/20 09:41 | 01/12/21 06:11 | 1 |
| Thallium-208 | 0.185 | | 0.0637 | 0.0665 | | 0.0214 | pCi/g | 12/22/20 09:41 | 01/12/21 06:11 | 1 |
| Thorium 228 | 0.498 | | 0.0992 | 0.112 | | 0.0478 | pCi/g | 12/22/20 09:41 | 01/12/21 06:11 | 1 |
| Thorium-232 | 0.764 | | 0.223 | 0.236 | | 0.0374 | pCi/g | 12/22/20 09:41 | 01/12/21 06:11 | 1 |
| Thorium-234 | 0.335 | U | 0.486 | 0.488 | | 0.391 | pCi/g | 12/22/20 09:41 | 01/12/21 06:11 | 1 |
| Uranium-235 | 0.105 | U | 0.311 | 0.311 | | 0.203 | pCi/g | 12/22/20 09:41 | 01/12/21 06:11 | 1 |
| Uranium-238 | 0.335 | U | 0.486 | 0.488 | | 0.391 | pCi/g | 12/22/20 09:41 | 01/12/21 06:11 | 1 |

Client Sample ID: HPPG-ESU-TU124A-020

Lab Sample ID: 160-40800-20

Date Collected: 12/10/20 11:41

Matrix: Solid

Date Received: 12/15/20 09:24

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

| Analyte | Result | Qualifier | Count | Total | LOQ | DLC | Unit | Prepared | Analyzed | Dil Fac |
|--------------------|--------------|-----------|---------|---------|--------|--------|-------|----------------|----------------|---------|
| | | | (2σ+/-) | (2σ+/-) | | | | | | |
| Actinium 228 | 0.537 | | 0.180 | 0.188 | | 0.0750 | pCi/g | 12/22/20 09:41 | 01/12/21 06:14 | 1 |
| Actinium-227 | 0.0886 | U | 0.361 | 0.361 | | 0.322 | pCi/g | 12/22/20 09:41 | 01/12/21 06:14 | 1 |
| Bismuth-212 | -0.306 | U | 0.807 | 0.807 | | 0.646 | pCi/g | 12/22/20 09:41 | 01/12/21 06:14 | 1 |
| Bismuth-214 | 0.466 | | 0.115 | 0.124 | | 0.0400 | pCi/g | 12/22/20 09:41 | 01/12/21 06:14 | 1 |
| Cesium-137 | 0.0322 | U | 0.0583 | 0.0584 | 0.0700 | 0.0451 | pCi/g | 12/22/20 09:41 | 01/12/21 06:14 | 1 |
| Lead-210 | -0.682 | U | 1.56 | 1.56 | | 1.30 | pCi/g | 12/22/20 09:41 | 01/12/21 06:14 | 1 |
| Lead-212 | 0.444 | | 0.0932 | 0.109 | | 0.0477 | pCi/g | 12/22/20 09:41 | 01/12/21 06:14 | 1 |
| Lead-214 | 0.459 | | 0.103 | 0.114 | | 0.0352 | pCi/g | 12/22/20 09:41 | 01/12/21 06:14 | 1 |
| Potassium-40 | 7.73 | | 1.23 | 1.46 | | 0.265 | pCi/g | 12/22/20 09:41 | 01/12/21 06:14 | 1 |
| Protactinium-231 | 0.000 | U | 0.420 | 0.420 | | 2.27 | pCi/g | 12/22/20 09:41 | 01/12/21 06:14 | 1 |
| Protactinium-234 | 0.0112 | U | 0.0173 | 0.0174 | | 0.172 | pCi/g | 12/22/20 09:41 | 01/12/21 06:14 | 1 |
| Radium-226 | 0.466 | | 0.115 | 0.124 | 0.200 | 0.0400 | pCi/g | 12/22/20 09:41 | 01/12/21 06:14 | 1 |
| Radium-228 | 0.537 | | 0.180 | 0.188 | | 0.0750 | pCi/g | 12/22/20 09:41 | 01/12/21 06:14 | 1 |
| Thallium-208 | 0.119 | | 0.0880 | 0.0889 | | 0.0391 | pCi/g | 12/22/20 09:41 | 01/12/21 06:14 | 1 |
| Thorium 228 | 0.444 | | 0.0932 | 0.109 | | 0.0477 | pCi/g | 12/22/20 09:41 | 01/12/21 06:14 | 1 |
| Thorium-232 | 0.537 | | 0.180 | 0.188 | | 0.0750 | pCi/g | 12/22/20 09:41 | 01/12/21 06:14 | 1 |
| Thorium-234 | -0.724 | U | 0.581 | 0.587 | | 0.827 | pCi/g | 12/22/20 09:41 | 01/12/21 06:14 | 1 |
| Uranium-235 | 0.0636 | U | 0.289 | 0.289 | | 0.262 | pCi/g | 12/22/20 09:41 | 01/12/21 06:14 | 1 |
| Uranium-238 | -0.724 | U | 0.581 | 0.587 | | 0.827 | pCi/g | 12/22/20 09:41 | 01/12/21 06:14 | 1 |

Eurofins TestAmerica, St. Louis

Client Sample Results

Client: Aptim Federal Services LLC
Project/Site: HPNS-Parcel G 501197

Job ID: 160-40800-1
SDG: GJ46599746

Client Sample ID: HPPG-ESU-TU124A-021

Lab Sample ID: 160-40800-21

Date Collected: 12/10/20 11:43

Matrix: Solid

Date Received: 12/15/20 09:24

Method: 905 - Strontium-90 (GFPC)

| Analyte | Result | Qualifier | Count | Total | LOQ | DLC | Unit | Prepared | Analyzed | Dil Fac |
|----------------|--------|-----------|--------------------|--------------------|-------|-------|-------|-----------------|-----------------|----------------|
| | | | Uncert. (2σ+/-) | Uncert. (2σ+/-) | | | | | | |
| Strontium-90 | 0.451 | | 0.196 | 0.200 | 0.331 | 0.130 | pCi/g | 12/28/20 18:50 | 01/06/21 17:43 | 1 |
| <i>Carrier</i> | %Yield | Qualifier | <i>Limits</i> | | | | | <i>Prepared</i> | <i>Analyzed</i> | <i>Dil Fac</i> |
| Sr Carrier | 92.7 | | 40 - 110 | | | | | 12/28/20 18:50 | 01/06/21 17:43 | 1 |
| Y Carrier | 90.5 | | 40 - 110 | | | | | 12/28/20 18:50 | 01/06/21 17:43 | 1 |

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

| Analyte | Result | Qualifier | Count | Total | LOQ | DLC | Unit | Prepared | Analyzed | Dil Fac |
|--------------------|--------------|-----------|--------------------|--------------------|--------|--------|-------|----------------|----------------|---------|
| | | | Uncert. (2σ+/-) | Uncert. (2σ+/-) | | | | | | |
| Actinium 228 | 0.590 | | 0.162 | 0.173 | | 0.0260 | pCi/g | 12/22/20 09:41 | 01/12/21 06:11 | 1 |
| Actinium-227 | 0.201 | U | 0.348 | 0.348 | | 0.231 | pCi/g | 12/22/20 09:41 | 01/12/21 06:11 | 1 |
| Bismuth-212 | 0.383 | U | 0.672 | 0.673 | | 0.519 | pCi/g | 12/22/20 09:41 | 01/12/21 06:11 | 1 |
| Bismuth-214 | 0.450 | | 0.116 | 0.125 | | 0.0348 | pCi/g | 12/22/20 09:41 | 01/12/21 06:11 | 1 |
| Cesium-137 | -0.0427 | U | 0.0617 | 0.0618 | 0.0700 | 0.0474 | pCi/g | 12/22/20 09:41 | 01/12/21 06:11 | 1 |
| Lead-210 | 0.401 | U | 1.48 | 1.48 | | 1.20 | pCi/g | 12/22/20 09:41 | 01/12/21 06:11 | 1 |
| Lead-212 | 0.417 | | 0.0871 | 0.102 | | 0.0498 | pCi/g | 12/22/20 09:41 | 01/12/21 06:11 | 1 |
| Lead-214 | 0.540 | | 0.127 | 0.139 | | 0.0442 | pCi/g | 12/22/20 09:41 | 01/12/21 06:11 | 1 |
| Potassium-40 | 9.45 | | 1.34 | 1.66 | | 0.179 | pCi/g | 12/22/20 09:41 | 01/12/21 06:11 | 1 |
| Protactinium-231 | 0.000 | U | 0.209 | 0.209 | | 1.68 | pCi/g | 12/22/20 09:41 | 01/12/21 06:11 | 1 |
| Protactinium-234 | 0.123 | U | 0.285 | 0.285 | | 0.149 | pCi/g | 12/22/20 09:41 | 01/12/21 06:11 | 1 |
| Radium-226 | 0.450 | | 0.116 | 0.125 | 0.200 | 0.0348 | pCi/g | 12/22/20 09:41 | 01/12/21 06:11 | 1 |
| Radium-228 | 0.590 | | 0.162 | 0.173 | | 0.0260 | pCi/g | 12/22/20 09:41 | 01/12/21 06:11 | 1 |
| Thallium-208 | 0.143 | | 0.0783 | 0.0797 | | 0.0324 | pCi/g | 12/22/20 09:41 | 01/12/21 06:11 | 1 |
| Thorium 228 | 0.417 | | 0.0871 | 0.102 | | 0.0498 | pCi/g | 12/22/20 09:41 | 01/12/21 06:11 | 1 |
| Thorium-232 | 0.590 | | 0.162 | 0.173 | | 0.0260 | pCi/g | 12/22/20 09:41 | 01/12/21 06:11 | 1 |
| Thorium-234 | -0.921 | U | 0.653 | 0.661 | | 1.35 | pCi/g | 12/22/20 09:41 | 01/12/21 06:11 | 1 |
| Uranium-235 | -0.181 | U | 0.186 | 0.187 | | 0.317 | pCi/g | 12/22/20 09:41 | 01/12/21 06:11 | 1 |
| Uranium-238 | -0.921 | U | 0.653 | 0.661 | | 1.35 | pCi/g | 12/22/20 09:41 | 01/12/21 06:11 | 1 |

Client Sample ID: HPPG-ESU-TU124A-022

Lab Sample ID: 160-40800-22

Date Collected: 12/10/20 11:45

Matrix: Solid

Date Received: 12/15/20 09:24

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

| Analyte | Result | Qualifier | Count | Total | LOQ | DLC | Unit | Prepared | Analyzed | Dil Fac |
|--------------------|--------------|-----------|--------------------|--------------------|--------|--------|-------|----------------|----------------|---------|
| | | | Uncert. (2σ+/-) | Uncert. (2σ+/-) | | | | | | |
| Actinium 228 | 0.528 | | 0.130 | 0.140 | | 0.0453 | pCi/g | 12/22/20 09:41 | 01/12/21 06:35 | 1 |
| Actinium-227 | -0.301 | U | 0.574 | 0.575 | | 0.332 | pCi/g | 12/22/20 09:41 | 01/12/21 06:35 | 1 |
| Bismuth-212 | 0.984 | | 0.333 | 0.348 | | 0.0655 | pCi/g | 12/22/20 09:41 | 01/12/21 06:35 | 1 |
| Bismuth-214 | 0.465 | | 0.0972 | 0.109 | | 0.0304 | pCi/g | 12/22/20 09:41 | 01/12/21 06:35 | 1 |
| Cesium-137 | -0.0145 | U | 0.0576 | 0.0576 | 0.0700 | 0.0465 | pCi/g | 12/22/20 09:41 | 01/12/21 06:35 | 1 |
| Lead-210 | 0.0868 | U | 1.02 | 1.02 | | 0.835 | pCi/g | 12/22/20 09:41 | 01/12/21 06:35 | 1 |
| Lead-212 | 0.518 | | 0.0746 | 0.100 | | 0.0263 | pCi/g | 12/22/20 09:41 | 01/12/21 06:35 | 1 |
| Lead-214 | 0.392 | | 0.0943 | 0.103 | | 0.0484 | pCi/g | 12/22/20 09:41 | 01/12/21 06:35 | 1 |
| Potassium-40 | 9.48 | | 1.14 | 1.50 | | 0.0800 | pCi/g | 12/22/20 09:41 | 01/12/21 06:35 | 1 |
| Protactinium-231 | 0.000 | U | 0.220 | 0.220 | | 1.71 | pCi/g | 12/22/20 09:41 | 01/12/21 06:35 | 1 |

Eurofins TestAmerica, St. Louis

Client Sample Results

Client: Aptim Federal Services LLC
Project/Site: HPNS-Parcel G 501197

Job ID: 160-40800-1
SDG: GJ46599746

Client Sample ID: HPPG-ESU-TU124A-022
Date Collected: 12/10/20 11:45
Date Received: 12/15/20 09:24

Lab Sample ID: 160-40800-22
Matrix: Solid

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS) (Continued)

| Analyte | Result | Qualifier | Count | Total | LOQ | DLC | Unit | Prepared | Analyzed | Dil Fac |
|------------------|----------|-----------|---------|---------|---------|-------|---------|----------|----------------|----------------|
| | | | Uncert. | (2σ+/-) | | | | | | |
| Protactinium-234 | 0.0224 | U | | 0.0321 | 0.0322 | | 0.210 | pCi/g | 12/22/20 09:41 | 01/12/21 06:35 |
| Radium-226 | 0.465 | | | 0.0972 | 0.109 | 0.200 | 0.0304 | pCi/g | 12/22/20 09:41 | 01/12/21 06:35 |
| Radium-228 | 0.528 | | | 0.130 | 0.140 | | 0.0453 | pCi/g | 12/22/20 09:41 | 01/12/21 06:35 |
| Thallium-208 | 0.211 | | | 0.0423 | 0.0476 | | 0.00496 | pCi/g | 12/22/20 09:41 | 01/12/21 06:35 |
| Thorium 228 | 0.518 | | | 0.0746 | 0.100 | | 0.0263 | pCi/g | 12/22/20 09:41 | 01/12/21 06:35 |
| Thorium-232 | 0.528 | | | 0.130 | 0.140 | | 0.0453 | pCi/g | 12/22/20 09:41 | 01/12/21 06:35 |
| Thorium-234 | 0.000704 | U | | 0.00136 | 0.00136 | | 0.835 | pCi/g | 12/22/20 09:41 | 01/12/21 06:35 |
| Uranium-235 | 0.0541 | U | | 0.165 | 0.165 | | 0.387 | pCi/g | 12/22/20 09:41 | 01/12/21 06:35 |
| Uranium-238 | 0.000704 | U | | 0.00136 | 0.00136 | | 0.835 | pCi/g | 12/22/20 09:41 | 01/12/21 06:35 |

Client Sample ID: HPPG-ESU-TU124A-023

Lab Sample ID: 160-40800-23

Date Collected: 12/10/20 11:47
Date Received: 12/15/20 09:24

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

| Analyte | Result | Qualifier | Count | Total | LOQ | DLC | Unit | Prepared | Analyzed | Dil Fac |
|------------------|--------|-----------|---------|---------|--------|--------|--------|----------|----------------|----------------|
| | | | Uncert. | (2σ+/-) | | | | | | |
| Actinium 228 | 0.553 | | | 0.155 | 0.165 | | 0.0265 | pCi/g | 12/22/20 09:41 | 01/12/21 06:35 |
| Actinium-227 | 0.0628 | U | | 0.257 | 0.257 | | 0.315 | pCi/g | 12/22/20 09:41 | 01/12/21 06:35 |
| Bismuth-212 | 0.0369 | U | | 0.805 | 0.805 | | 0.660 | pCi/g | 12/22/20 09:41 | 01/12/21 06:35 |
| Bismuth-214 | 0.362 | | | 0.116 | 0.122 | | 0.0519 | pCi/g | 12/22/20 09:41 | 01/12/21 06:35 |
| Cesium-137 | 0.0272 | U | | 0.0552 | 0.0553 | 0.0700 | 0.0429 | pCi/g | 12/22/20 09:41 | 01/12/21 06:35 |
| Lead-210 | 1.53 | | | 1.39 | 1.40 | | 1.06 | pCi/g | 12/22/20 09:41 | 01/12/21 06:35 |
| Lead-212 | 0.583 | | | 0.136 | 0.156 | | 0.0895 | pCi/g | 12/22/20 09:41 | 01/12/21 06:35 |
| Lead-214 | 0.395 | | | 0.101 | 0.109 | | 0.0597 | pCi/g | 12/22/20 09:41 | 01/12/21 06:35 |
| Potassium-40 | 8.34 | | | 1.26 | 1.52 | | 0.267 | pCi/g | 12/22/20 09:41 | 01/12/21 06:35 |
| Protactinium-231 | -0.763 | U | | 2.61 | 2.61 | | 2.12 | pCi/g | 12/22/20 09:41 | 01/12/21 06:35 |
| Protactinium-234 | 0.0618 | U | | 0.0779 | 0.0782 | | 0.247 | pCi/g | 12/22/20 09:41 | 01/12/21 06:35 |
| Radium-226 | 0.362 | | | 0.116 | 0.122 | 0.200 | 0.0519 | pCi/g | 12/22/20 09:41 | 01/12/21 06:35 |
| Radium-228 | 0.553 | | | 0.155 | 0.165 | | 0.0265 | pCi/g | 12/22/20 09:41 | 01/12/21 06:35 |
| Thallium-208 | 0.145 | | | 0.0471 | 0.0495 | | 0.0175 | pCi/g | 12/22/20 09:41 | 01/12/21 06:35 |
| Thorium 228 | 0.583 | | | 0.136 | 0.156 | | 0.0895 | pCi/g | 12/22/20 09:41 | 01/12/21 06:35 |
| Thorium-232 | 0.553 | | | 0.155 | 0.165 | | 0.0265 | pCi/g | 12/22/20 09:41 | 01/12/21 06:35 |
| Thorium-234 | 0.196 | U | | 0.562 | 0.562 | | 0.450 | pCi/g | 12/22/20 09:41 | 01/12/21 06:35 |
| Uranium-235 | 0.144 | U | | 0.372 | 0.372 | | 0.340 | pCi/g | 12/22/20 09:41 | 01/12/21 06:35 |
| Uranium-238 | 0.196 | U | | 0.562 | 0.562 | | 0.450 | pCi/g | 12/22/20 09:41 | 01/12/21 06:35 |

Client Sample ID: HPPG-ESU-TU124A-024

Lab Sample ID: 160-40800-24

Date Collected: 12/10/20 11:49
Date Received: 12/15/20 09:24

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

| Analyte | Result | Qualifier | Count | Total | LOQ | DLC | Unit | Prepared | Analyzed | Dil Fac |
|--------------|--------|-----------|---------|---------|--------|-----|-------|----------|----------------|----------------|
| | | | Uncert. | (2σ+/-) | | | | | | |
| Actinium 228 | 0.212 | | | 0.347 | 0.347 | | 0.198 | pCi/g | 12/22/20 09:41 | 01/12/21 06:36 |
| Actinium-227 | 0.0190 | U | | 0.0501 | 0.0502 | | 0.419 | pCi/g | 12/22/20 09:41 | 01/12/21 06:36 |

Eurofins TestAmerica, St. Louis

Client Sample Results

Client: Aptim Federal Services LLC
 Project/Site: HPNS-Parcel G 501197

Job ID: 160-40800-1
 SDG: GJ46599746

Client Sample ID: HPPG-ESU-TU124A-024

Lab Sample ID: 160-40800-24

Date Collected: 12/10/20 11:49
 Date Received: 12/15/20 09:24

Matrix: Solid

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS) (Continued)

| Analyte | Result | Qualifier | Count | Total | LOQ | DLC | Unit | Prepared | Analyzed | Dil Fac |
|-------------------------|--------------|-----------|--------------------|--------------------|--------|--------|-------|----------------|----------------|---------|
| | | | Uncert. (2σ+/-) | Uncert. (2σ+/-) | | | | | | |
| Bismuth-212 | -0.694 | U | 1.30 | 1.30 | | 1.02 | pCi/g | 12/22/20 09:41 | 01/12/21 06:36 | 1 |
| Bismuth-214 | 0.664 | | 0.169 | 0.186 | | 0.0567 | pCi/g | 12/22/20 09:41 | 01/12/21 06:36 | 1 |
| Cesium-137 | 0.000 | U | 0.0457 | 0.0457 | 0.0700 | 0.0760 | pCi/g | 12/22/20 09:41 | 01/12/21 06:36 | 1 |
| Lead-210 | 1.21 | | 1.75 | 1.75 | | 1.18 | pCi/g | 12/22/20 09:41 | 01/12/21 06:36 | 1 |
| Lead-212 | 0.401 | | 0.108 | 0.118 | | 0.0585 | pCi/g | 12/22/20 09:41 | 01/12/21 06:36 | 1 |
| Lead-214 | 0.299 | | 0.140 | 0.144 | | 0.0740 | pCi/g | 12/22/20 09:41 | 01/12/21 06:36 | 1 |
| Potassium-40 | 10.2 | | 1.69 | 2.06 | | 0.374 | pCi/g | 12/22/20 09:41 | 01/12/21 06:36 | 1 |
| Protactinium-231 | 0.820 | U | 3.40 | 3.40 | | 2.77 | pCi/g | 12/22/20 09:41 | 01/12/21 06:36 | 1 |
| Protactinium-234 | 0.104 | | 0.137 | 0.138 | | 0.104 | pCi/g | 12/22/20 09:41 | 01/12/21 06:36 | 1 |
| Radium-226 | 0.664 | | 0.169 | 0.186 | 0.200 | 0.0567 | pCi/g | 12/22/20 09:41 | 01/12/21 06:36 | 1 |
| Radium-228 | 0.212 | | 0.347 | 0.347 | | 0.198 | pCi/g | 12/22/20 09:41 | 01/12/21 06:36 | 1 |
| Thallium-208 | 0.196 | | 0.0778 | 0.0810 | | 0.0271 | pCi/g | 12/22/20 09:41 | 01/12/21 06:36 | 1 |
| Thorium 228 | 0.401 | | 0.108 | 0.118 | | 0.0585 | pCi/g | 12/22/20 09:41 | 01/12/21 06:36 | 1 |
| Thorium-232 | 0.212 | | 0.347 | 0.347 | | 0.198 | pCi/g | 12/22/20 09:41 | 01/12/21 06:36 | 1 |
| Thorium-234 | 0.880 | | 0.745 | 0.753 | | 0.573 | pCi/g | 12/22/20 09:41 | 01/12/21 06:36 | 1 |
| Uranium-235 | -0.0290 | U | 0.181 | 0.181 | | 0.374 | pCi/g | 12/22/20 09:41 | 01/12/21 06:36 | 1 |
| Uranium-238 | 0.880 | | 0.745 | 0.753 | | 0.573 | pCi/g | 12/22/20 09:41 | 01/12/21 06:36 | 1 |

Client Sample ID: HPPG-ESU-TU124A-025

Lab Sample ID: 160-40800-25

Date Collected: 12/10/20 11:53
 Date Received: 12/15/20 09:24

Matrix: Solid

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

| Analyte | Result | Qualifier | Count | Total | LOQ | DLC | Unit | Prepared | Analyzed | Dil Fac |
|--------------------|--------------|-----------|--------------------|--------------------|--------|--------|-------|----------------|----------------|---------|
| | | | Uncert. (2σ+/-) | Uncert. (2σ+/-) | | | | | | |
| Actinium 228 | 0.591 | | 0.168 | 0.178 | | 0.105 | pCi/g | 12/22/20 09:41 | 01/12/21 06:46 | 1 |
| Actinium-227 | -0.0802 | U | 0.606 | 0.606 | | 0.312 | pCi/g | 12/22/20 09:41 | 01/12/21 06:46 | 1 |
| Bismuth-212 | 0.000 | U | 0.130 | 0.130 | | 0.514 | pCi/g | 12/22/20 09:41 | 01/12/21 06:46 | 1 |
| Bismuth-214 | 0.298 | | 0.167 | 0.170 | | 0.137 | pCi/g | 12/22/20 09:41 | 01/12/21 06:46 | 1 |
| Cesium-137 | -0.0275 | U | 0.0672 | 0.0673 | 0.0700 | 0.0528 | pCi/g | 12/22/20 09:41 | 01/12/21 06:46 | 1 |
| Lead-210 | -0.593 | U | 1.64 | 1.64 | | 1.37 | pCi/g | 12/22/20 09:41 | 01/12/21 06:46 | 1 |
| Lead-212 | 0.513 | | 0.0918 | 0.106 | | 0.0402 | pCi/g | 12/22/20 09:41 | 01/12/21 06:46 | 1 |
| Lead-214 | 0.447 | | 0.135 | 0.142 | | 0.0551 | pCi/g | 12/22/20 09:41 | 01/12/21 06:46 | 1 |
| Potassium-40 | 8.96 | | 1.50 | 1.75 | | 0.247 | pCi/g | 12/22/20 09:41 | 01/12/21 06:46 | 1 |
| Protactinium-231 | 0.000 | U | 0.378 | 0.378 | | 2.32 | pCi/g | 12/22/20 09:41 | 01/12/21 06:46 | 1 |
| Protactinium-234 | -0.0866 | U | 0.273 | 0.273 | | 0.223 | pCi/g | 12/22/20 09:41 | 01/12/21 06:46 | 1 |
| Radium-226 | 0.298 | | 0.167 | 0.170 | 0.200 | 0.137 | pCi/g | 12/22/20 09:41 | 01/12/21 06:46 | 1 |
| Radium-228 | 0.591 | | 0.168 | 0.178 | | 0.105 | pCi/g | 12/22/20 09:41 | 01/12/21 06:46 | 1 |
| Thallium-208 | 0.204 | | 0.0608 | 0.0643 | | 0.0155 | pCi/g | 12/22/20 09:41 | 01/12/21 06:46 | 1 |
| Thorium 228 | 0.513 | | 0.0918 | 0.106 | | 0.0402 | pCi/g | 12/22/20 09:41 | 01/12/21 06:46 | 1 |
| Thorium-232 | 0.591 | | 0.168 | 0.178 | | 0.105 | pCi/g | 12/22/20 09:41 | 01/12/21 06:46 | 1 |
| Thorium-234 | 0.439 | | 0.443 | 0.446 | | 0.383 | pCi/g | 12/22/20 09:41 | 01/12/21 06:46 | 1 |
| Uranium-235 | 0.141 | U | 0.316 | 0.316 | | 0.397 | pCi/g | 12/22/20 09:41 | 01/12/21 06:46 | 1 |
| Uranium-238 | 0.439 | | 0.443 | 0.446 | | 0.383 | pCi/g | 12/22/20 09:41 | 01/12/21 06:46 | 1 |

Eurofins TestAmerica, St. Louis

Client Sample Results

Client: Aptim Federal Services LLC
Project/Site: HPNS-Parcel G 501197

Job ID: 160-40800-1
SDG: GJ46599746

Client Sample ID: HPPG-F-057
Date Collected: 12/10/20 11:21
Date Received: 12/15/20 09:24

Lab Sample ID: 160-40800-26
Matrix: Solid

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

| Analyte | Result | Qualifier | Count | Total | LOQ | DLC | Unit | Prepared | Analyzed | Dil Fac |
|---------------------|--------------|-----------|---------|---------|--------|--------|-------|----------------|----------------|---------|
| | | | (2σ+/-) | (2σ+/-) | | | | | | |
| Actinium 228 | 0.453 | | 0.170 | 0.176 | | 0.0499 | pCi/g | 12/22/20 09:41 | 01/12/21 06:49 | 1 |
| Actinium-227 | 0.0200 | U | 0.0751 | 0.0752 | | 0.328 | pCi/g | 12/22/20 09:41 | 01/12/21 06:49 | 1 |
| Bismuth-212 | 0.00725 | U | 0.824 | 0.824 | | 0.678 | pCi/g | 12/22/20 09:41 | 01/12/21 06:49 | 1 |
| Bismuth-214 | 0.462 | | 0.132 | 0.141 | | 0.0566 | pCi/g | 12/22/20 09:41 | 01/12/21 06:49 | 1 |
| Cesium-137 | 0.0264 | U | 0.0474 | 0.0475 | 0.0700 | 0.0361 | pCi/g | 12/22/20 09:41 | 01/12/21 06:49 | 1 |
| Lead-210 | 0.778 | U | | 1.45 | | 0.941 | pCi/g | 12/22/20 09:41 | 01/12/21 06:49 | 1 |
| Lead-212 | 0.465 | | 0.0944 | 0.112 | | 0.0480 | pCi/g | 12/22/20 09:41 | 01/12/21 06:49 | 1 |
| Lead-214 | 0.492 | | 0.125 | 0.135 | | 0.0527 | pCi/g | 12/22/20 09:41 | 01/12/21 06:49 | 1 |
| Potassium-40 | 10.0 | | 1.38 | 1.72 | | 0.261 | pCi/g | 12/22/20 09:41 | 01/12/21 06:49 | 1 |
| Protactinium-231 | 0.553 | U | 1.89 | 1.89 | | 2.07 | pCi/g | 12/22/20 09:41 | 01/12/21 06:49 | 1 |
| Protactinium-234 | 0.109 | U | 0.269 | 0.269 | | 0.167 | pCi/g | 12/22/20 09:41 | 01/12/21 06:49 | 1 |
| Radium-226 | 0.462 | | 0.132 | 0.141 | 0.200 | 0.0566 | pCi/g | 12/22/20 09:41 | 01/12/21 06:49 | 1 |
| Radium-228 | 0.453 | | 0.170 | 0.176 | | 0.0499 | pCi/g | 12/22/20 09:41 | 01/12/21 06:49 | 1 |
| Thallium-208 | 0.141 | | 0.0864 | 0.0876 | | 0.0453 | pCi/g | 12/22/20 09:41 | 01/12/21 06:49 | 1 |
| Thorium 228 | 0.465 | | 0.0944 | 0.112 | | 0.0480 | pCi/g | 12/22/20 09:41 | 01/12/21 06:49 | 1 |
| Thorium-232 | 0.453 | | 0.170 | 0.176 | | 0.0499 | pCi/g | 12/22/20 09:41 | 01/12/21 06:49 | 1 |
| Thorium-234 | -0.381 | U | 0.978 | 0.979 | | 0.775 | pCi/g | 12/22/20 09:41 | 01/12/21 06:49 | 1 |
| Uranium-235 | 0.000 | U | 0.204 | 0.204 | | 0.281 | pCi/g | 12/22/20 09:41 | 01/12/21 06:49 | 1 |
| Uranium-238 | -0.381 | U | 0.978 | 0.979 | | 0.775 | pCi/g | 12/22/20 09:41 | 01/12/21 06:49 | 1 |

Client Sample ID: HPPG-F-058

Lab Sample ID: 160-40800-27

Date Collected: 12/10/20 11:53

Matrix: Solid

Date Received: 12/15/20 09:24

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

| Analyte | Result | Qualifier | Count | Total | LOQ | DLC | Unit | Prepared | Analyzed | Dil Fac |
|---------------------|--------------|-----------|---------|---------|--------|--------|-------|----------------|----------------|---------|
| | | | (2σ+/-) | (2σ+/-) | | | | | | |
| Actinium 228 | 0.520 | | 0.156 | 0.165 | | 0.0625 | pCi/g | 12/22/20 09:41 | 01/12/21 06:47 | 1 |
| Actinium-227 | 0.119 | U | 0.206 | 0.207 | | 0.311 | pCi/g | 12/22/20 09:41 | 01/12/21 06:47 | 1 |
| Bismuth-212 | 0.450 | U | 0.766 | 0.768 | | 0.596 | pCi/g | 12/22/20 09:41 | 01/12/21 06:47 | 1 |
| Bismuth-214 | 0.368 | | 0.105 | 0.112 | | 0.0342 | pCi/g | 12/22/20 09:41 | 01/12/21 06:47 | 1 |
| Cesium-137 | -0.0245 | U | 0.0546 | 0.0547 | 0.0700 | 0.0428 | pCi/g | 12/22/20 09:41 | 01/12/21 06:47 | 1 |
| Lead-210 | 0.340 | U | | 1.39 | | 1.13 | pCi/g | 12/22/20 09:41 | 01/12/21 06:47 | 1 |
| Lead-212 | 0.389 | | 0.0803 | 0.0947 | | 0.0431 | pCi/g | 12/22/20 09:41 | 01/12/21 06:47 | 1 |
| Lead-214 | 0.376 | | 0.0947 | 0.102 | | 0.0419 | pCi/g | 12/22/20 09:41 | 01/12/21 06:47 | 1 |
| Potassium-40 | 8.72 | | 1.30 | 1.58 | | 0.181 | pCi/g | 12/22/20 09:41 | 01/12/21 06:47 | 1 |
| Protactinium-231 | 0.699 | U | 1.53 | 1.54 | | 1.69 | pCi/g | 12/22/20 09:41 | 01/12/21 06:47 | 1 |
| Protactinium-234 | 0.00226 | U | 0.0271 | 0.0271 | | 0.171 | pCi/g | 12/22/20 09:41 | 01/12/21 06:47 | 1 |
| Radium-226 | 0.368 | | 0.105 | 0.112 | 0.200 | 0.0342 | pCi/g | 12/22/20 09:41 | 01/12/21 06:47 | 1 |
| Radium-228 | 0.520 | | 0.156 | 0.165 | | 0.0625 | pCi/g | 12/22/20 09:41 | 01/12/21 06:47 | 1 |
| Thallium-208 | 0.184 | | 0.0677 | 0.0704 | | 0.0262 | pCi/g | 12/22/20 09:41 | 01/12/21 06:47 | 1 |
| Thorium 228 | 0.389 | | 0.0803 | 0.0947 | | 0.0431 | pCi/g | 12/22/20 09:41 | 01/12/21 06:47 | 1 |
| Thorium-232 | 0.520 | | 0.156 | 0.165 | | 0.0625 | pCi/g | 12/22/20 09:41 | 01/12/21 06:47 | 1 |
| Thorium-234 | -0.791 | U | 0.457 | 0.465 | | 1.02 | pCi/g | 12/22/20 09:41 | 01/12/21 06:47 | 1 |
| Uranium-235 | -0.177 | U | 0.242 | 0.242 | | 0.304 | pCi/g | 12/22/20 09:41 | 01/12/21 06:47 | 1 |
| Uranium-238 | -0.791 | U | 0.457 | 0.465 | | 1.02 | pCi/g | 12/22/20 09:41 | 01/12/21 06:47 | 1 |

Eurofins TestAmerica, St. Louis

QC Sample Results

Client: Aptim Federal Services LLC
Project/Site: HPNS-Parcel G 501197

Job ID: 160-40800-1
SDG: GJ46599746

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-493207/23-A

Matrix: Solid

Analysis Batch: 494113

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 493207

| Analyte | MB MB | | Count Uncert. (2σ+/-) | Total Uncert. (2σ+/-) | LOQ | DLC | Unit | Prepared | Analyzed | Dil Fac |
|----------------|---------|-----------|-----------------------------|-----------------------------|-------|-------|-------|----------------|----------------|---------|
| | Result | Qualifier | | | | | | | | |
| Strontium-90 | 0.04436 | U | 0.145 | 0.145 | 0.331 | 0.116 | pCi/g | 12/28/20 18:50 | 01/06/21 17:55 | 1 |
| Carrier | | | | | | | | | | |
| Sr Carrier | 101 | | 40 - 110 | | | | | 12/28/20 18:50 | 01/06/21 17:55 | 1 |
| Y Carrier | 90.1 | | 40 - 110 | | | | | 12/28/20 18:50 | 01/06/21 17:55 | 1 |

Lab Sample ID: LCS 160-493207/1-A

Matrix: Solid

Analysis Batch: 494112

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 493207

| Analyte | MB MB | | Count Uncert. (2σ+/-) | Total Uncert. (2σ+/-) | LOQ | DLC | Unit | %Rec | %Rec. Limits | Dil Fac |
|----------------|---------|-----------|-----------------------------|-----------------------------|-------|-------|-------|----------------|-----------------|---------|
| | Result | Qualifier | | | | | | | | |
| Strontium-90 | 0.04436 | U | 0.145 | 0.145 | 0.331 | 0.116 | pCi/g | 12/28/20 18:50 | 01/06/21 17:55 | 1 |
| Carrier | | | | | | | | | | |
| Sr Carrier | 101 | | 40 - 110 | | | | | 12/28/20 18:50 | 01/06/21 17:55 | 1 |
| Y Carrier | 90.1 | | 40 - 110 | | | | | 12/28/20 18:50 | 01/06/21 17:55 | 1 |

Lab Sample ID: 160-40800-21 DU

Matrix: Solid

Analysis Batch: 494113

Client Sample ID: HPPG-ESU-TU124A-021

Prep Type: Total/NA

Prep Batch: 493207

| Analyte | Sample Sample | | DU DU | | Total Uncert. (2σ+/-) | LOQ | DLC | Unit | RER | Limit |
|----------------|---------------|------|----------|------|-----------------------------|-------|-------|-------|------|-------|
| | Result | Qual | Result | Qual | | | | | | |
| Strontium-90 | 0.451 | | 0.09907 | U | 0.188 | 0.331 | 0.148 | pCi/g | 0.91 | 1 |
| Carrier | | | | | | | | | | |
| Sr Carrier | 92.9 | | 40 - 110 | | | | | | | |
| Y Carrier | 89.0 | | 40 - 110 | | | | | | | |

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-492605/1-A

Matrix: Solid

Analysis Batch: 494542

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 492605

| Analyte | MB MB | | Count Uncert. (2σ+/-) | Total Uncert. (2σ+/-) | LOQ | DLC | Unit | Prepared | Analyzed | Dil Fac |
|--------------|-----------|-----------|-----------------------------|-----------------------------|--------|--------|-------|----------------|----------------|---------|
| | Result | Qualifier | | | | | | | | |
| Actinium 228 | 0.06113 | U | 0.106 | 0.107 | 0.331 | 0.136 | pCi/g | 12/21/20 09:42 | 01/11/21 07:59 | 1 |
| Actinium-227 | 0.01652 | U | 0.0347 | 0.0348 | 0.314 | 0.314 | pCi/g | 12/21/20 09:42 | 01/11/21 07:59 | 1 |
| Bismuth-212 | -0.3625 | U | 0.896 | 0.897 | 0.636 | 0.636 | pCi/g | 12/21/20 09:42 | 01/11/21 07:59 | 1 |
| Bismuth-214 | -0.004102 | U | 0.160 | 0.160 | 0.131 | 0.131 | pCi/g | 12/21/20 09:42 | 01/11/21 07:59 | 1 |
| Cesium-137 | 0.0000 | U | 0.0197 | 0.0197 | 0.0700 | 0.0375 | pCi/g | 12/21/20 09:42 | 01/11/21 07:59 | 1 |
| Lead-210 | 0.1712 | U | 1.37 | 1.37 | 0.946 | 0.946 | pCi/g | 12/21/20 09:42 | 01/11/21 07:59 | 1 |
| Lead-212 | -0.009176 | U | 0.0962 | 0.0962 | 0.0793 | 0.0793 | pCi/g | 12/21/20 09:42 | 01/11/21 07:59 | 1 |
| Lead-214 | -0.02108 | U | 0.0822 | 0.0822 | 0.0946 | 0.0946 | pCi/g | 12/21/20 09:42 | 01/11/21 07:59 | 1 |
| Potassium-40 | -0.3081 | U | 0.768 | 0.769 | 0.479 | 0.479 | pCi/g | 12/21/20 09:42 | 01/11/21 07:59 | 1 |

Eurofins TestAmerica, St. Louis

QC Sample Results

Client: Aptim Federal Services LLC
Project/Site: HPNS-Parcel G 501197

Job ID: 160-40800-1
SDG: GJ46599746

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS) (Continued)

Lab Sample ID: MB 160-492605/1-A

Matrix: Solid

Analysis Batch: 494542

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 492605

| Analyte | Result | MB | MB | Count | | Total | | DLC | Unit | Prepared | Analyzed | Dil Fac |
|------------------|-----------|----|----|---------|---------|---------|---------|--------|-------|----------------|----------------|---------|
| | | | | Uncert. | (2σ+/-) | Uncert. | (2σ+/-) | | | | | |
| Protactinium-231 | 0.3053 | U | | 1.18 | | 1.18 | | 1.85 | pCi/g | 12/21/20 09:42 | 01/11/21 07:59 | 1 |
| Protactinium-234 | 0.03932 | U | | 0.0321 | | 0.0324 | | 0.160 | pCi/g | 12/21/20 09:42 | 01/11/21 07:59 | 1 |
| Radium-226 | -0.004102 | U | | 0.160 | | 0.160 | | 0.200 | pCi/g | 12/21/20 09:42 | 01/11/21 07:59 | 1 |
| Radium-228 | 0.06113 | U | | 0.106 | | 0.107 | | 0.136 | pCi/g | 12/21/20 09:42 | 01/11/21 07:59 | 1 |
| Thallium-208 | -0.04000 | U | | 0.0298 | | 0.0301 | | 0.0438 | pCi/g | 12/21/20 09:42 | 01/11/21 07:59 | 1 |
| Thorium 228 | -0.009176 | U | | 0.0962 | | 0.0962 | | 0.0793 | pCi/g | 12/21/20 09:42 | 01/11/21 07:59 | 1 |
| Thorium-232 | 0.06113 | U | | 0.106 | | 0.107 | | 0.136 | pCi/g | 12/21/20 09:42 | 01/11/21 07:59 | 1 |
| Thorium-234 | -0.5956 | U | | 0.741 | | 0.744 | | 0.745 | pCi/g | 12/21/20 09:42 | 01/11/21 07:59 | 1 |
| Uranium-235 | 0.0000 | U | | 0.112 | | 0.112 | | 0.231 | pCi/g | 12/21/20 09:42 | 01/11/21 07:59 | 1 |
| Uranium-238 | -0.5956 | U | | 0.741 | | 0.744 | | 0.745 | pCi/g | 12/21/20 09:42 | 01/11/21 07:59 | 1 |

Lab Sample ID: LCS 160-492605/2-A

Matrix: Solid

Analysis Batch: 494544

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 492605

| Analyte | Spike Added | LCS | | Uncert. | | LOQ | DLC | Unit | %Rec | %Rec. | |
|---------------|-------------|--------|------|---------|---------|--------|--------|-------|------|----------|--|
| | | Result | Qual | (2σ+/-) | (2σ+/-) | | | | | Limits | |
| Americium-241 | 96.4 | 91.25 | | 9.63 | | | 0.619 | pCi/g | 95 | 87 - 116 | |
| Cesium-137 | 26.7 | 24.98 | | 2.68 | | 0.0700 | 0.107 | pCi/g | 94 | 87 - 120 | |
| Cobalt-60 | 9.37 | 8.648 | | 0.927 | | | 0.0364 | pCi/g | 92 | 87 - 115 | |

Lab Sample ID: 160-40800-4 DU

Matrix: Solid

Analysis Batch: 494550

Client Sample ID: HPPG-ESU-TU124A-004

Prep Type: Total/NA

Prep Batch: 492605

| Analyte | Sample | | DU | | Uncert. | | LOQ | DLC | Unit | RER | Limit |
|------------------|---------|------|----------|------|---------|---------|--------|--------|-------|------|-------|
| | Result | Qual | Result | Qual | (2σ+/-) | (2σ+/-) | | | | | |
| Actinium 228 | 0.499 | | 0.5387 | | 0.146 | | | 0.0692 | pCi/g | 0.14 | 1 |
| Actinium-227 | 0.146 | U | 0.1081 | U | 0.461 | | | 0.270 | pCi/g | 0.05 | 1 |
| Bismuth-212 | -0.0705 | U | 0.02614 | U | 0.572 | | | 0.469 | pCi/g | 0.08 | 1 |
| Bismuth-214 | 0.468 | | 0.4976 | | 0.136 | | | 0.0450 | pCi/g | 0.12 | 1 |
| Cesium-137 | -0.0338 | U | -0.02823 | U | 0.0726 | | 0.0700 | 0.0400 | pCi/g | 0.04 | 1 |
| Lead-210 | -0.602 | U | -0.07289 | U | 1.17 | | | 0.961 | pCi/g | 0.21 | 1 |
| Lead-212 | 0.0436 | U | 0.4203 | | 0.0910 | | | 0.0281 | pCi/g | 1.92 | 1 |
| Lead-214 | 0.401 | | 0.4753 | | 0.102 | | | 0.0501 | pCi/g | 0.38 | 1 |
| Potassium-40 | 9.49 | | 9.060 | | 1.53 | | | 0.251 | pCi/g | 0.14 | 1 |
| Protactinium-231 | 0.0278 | U | 0.5704 | U | 1.63 | | | 1.78 | pCi/g | 0.14 | 1 |
| Protactinium-234 | 0.152 | U | 0.001067 | U | 0.00207 | | | 0.216 | pCi/g | 1.65 | 1 |
| Radium-226 | 0.468 | | 0.4976 | | 0.136 | | 0.200 | 0.0450 | pCi/g | 0.12 | 1 |
| Radium-228 | 0.499 | | 0.5387 | | 0.146 | | | 0.0692 | pCi/g | 0.14 | 1 |
| Thallium-208 | 0.103 | | 0.1370 | | 0.0458 | | | 0.0139 | pCi/g | 0.35 | 1 |
| Thorium 228 | 0.0436 | U | 0.4203 | | 0.0910 | | | 0.0281 | pCi/g | 1.92 | 1 |
| Thorium-232 | 0.499 | | 0.5387 | | 0.146 | | | 0.0692 | pCi/g | 0.14 | 1 |
| Thorium-234 | 0.000 | U | 0.03419 | U | 0.0716 | | | 0.846 | pCi/g | 0.07 | 1 |
| Uranium-235 | -0.164 | U | 0.01212 | U | 0.154 | | | 0.394 | pCi/g | 0.29 | 1 |
| Uranium-238 | 0.000 | U | 0.03419 | U | 0.0716 | | | 0.846 | pCi/g | 0.07 | 1 |

Eurofins TestAmerica, St. Louis

QC Sample Results

Client: Aptim Federal Services LLC
Project/Site: HPNS-Parcel G 501197

Job ID: 160-40800-1
SDG: GJ46599746

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS) (Continued)

Lab Sample ID: MB 160-492647/1-A

Matrix: Solid

Analysis Batch: 494542

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 492647

| Analyte | Result | MB | MB | Count | Total | DLC | Unit | Prepared | Analyzed | Dil Fac |
|------------------|----------|----|----|--------------------|--------------------|--------|-------|----------------|----------------|---------|
| | | | | Uncert. (2σ+/-) | Uncert. (2σ+/-) | | | | | |
| Actinium 228 | -0.07514 | U | | 0.265 | 0.265 | 0.136 | pCi/g | 12/21/20 13:06 | 01/11/21 09:11 | 1 |
| Actinium-227 | 0.1400 | U | | 0.235 | 0.236 | 0.249 | pCi/g | 12/21/20 13:06 | 01/11/21 09:11 | 1 |
| Bismuth-212 | -0.3462 | U | | 1.02 | 1.02 | 0.653 | pCi/g | 12/21/20 13:06 | 01/11/21 09:11 | 1 |
| Bismuth-214 | -0.01802 | U | | 0.130 | 0.130 | 0.108 | pCi/g | 12/21/20 13:06 | 01/11/21 09:11 | 1 |
| Cesium-137 | 0.005365 | U | | 0.0708 | 0.0708 | 0.0578 | pCi/g | 12/21/20 13:06 | 01/11/21 09:11 | 1 |
| Lead-210 | 0.5365 | U | | 1.34 | 1.34 | 1.05 | pCi/g | 12/21/20 13:06 | 01/11/21 09:11 | 1 |
| Lead-212 | -0.01207 | U | | 0.0892 | 0.0892 | 0.0738 | pCi/g | 12/21/20 13:06 | 01/11/21 09:11 | 1 |
| Lead-214 | -0.04841 | U | | 0.116 | 0.117 | 0.0845 | pCi/g | 12/21/20 13:06 | 01/11/21 09:11 | 1 |
| Potassium-40 | -0.4257 | U | | 0.813 | 0.814 | 0.479 | pCi/g | 12/21/20 13:06 | 01/11/21 09:11 | 1 |
| Protactinium-231 | 0.08200 | U | | 1.16 | 1.16 | 1.80 | pCi/g | 12/21/20 13:06 | 01/11/21 09:11 | 1 |
| Protactinium-234 | -0.01817 | U | | 0.162 | 0.163 | 0.133 | pCi/g | 12/21/20 13:06 | 01/11/21 09:11 | 1 |
| Radium-226 | -0.01802 | U | | 0.130 | 0.130 | 0.108 | pCi/g | 12/21/20 13:06 | 01/11/21 09:11 | 1 |
| Radium-228 | -0.07514 | U | | 0.265 | 0.265 | 0.136 | pCi/g | 12/21/20 13:06 | 01/11/21 09:11 | 1 |
| Thallium-208 | 0.01545 | U | | 0.0388 | 0.0388 | 0.0357 | pCi/g | 12/21/20 13:06 | 01/11/21 09:11 | 1 |
| Thorium 228 | -0.01207 | U | | 0.0892 | 0.0892 | 0.0738 | pCi/g | 12/21/20 13:06 | 01/11/21 09:11 | 1 |
| Thorium-232 | -0.07514 | U | | 0.265 | 0.265 | 0.136 | pCi/g | 12/21/20 13:06 | 01/11/21 09:11 | 1 |
| Thorium-234 | -0.7001 | U | | 0.625 | 0.630 | 0.642 | pCi/g | 12/21/20 13:06 | 01/11/21 09:11 | 1 |
| Uranium-235 | 0.002266 | U | | 0.00443 | 0.00443 | 0.231 | pCi/g | 12/21/20 13:06 | 01/11/21 09:11 | 1 |
| Uranium-238 | -0.7001 | U | | 0.625 | 0.630 | 0.642 | pCi/g | 12/21/20 13:06 | 01/11/21 09:11 | 1 |

Lab Sample ID: LCS 160-492647/2-A

Matrix: Solid

Analysis Batch: 494550

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 492647

| Analyte | Spike Added | LCS Result | LCS Qual | Total | | DLC | Unit | %Rec. | Limits |
|---------------|----------------|---------------|-------------|--------------------|--------|--------|-------|-------|----------|
| | | | | Uncert. (2σ+/-) | LOQ | | | | |
| Americium-241 | 96.4 | 91.93 | | 9.64 | | 0.468 | pCi/g | 95 | 87 - 116 |
| Cesium-137 | 26.7 | 25.98 | | 2.76 | 0.0700 | 0.0730 | pCi/g | 97 | 87 - 120 |
| Cobalt-60 | 9.37 | 9.010 | | 0.948 | | 0.0312 | pCi/g | 96 | 87 - 115 |

Lab Sample ID: 160-40800-17 DU

Matrix: Solid

Analysis Batch: 494550

Client Sample ID: HPPG-ESU-TU124A-017

Prep Type: Total/NA

Prep Batch: 492647

| Analyte | Sample Result | Sample Qual | DU Result | DU Qual | Total | | DLC | Unit | RER | Limit |
|------------------|------------------|----------------|--------------|------------|--------------------|--------|--------|-------|------|-------|
| | | | | | Uncert. (2σ+/-) | LOQ | | | | |
| Actinium 228 | 0.457 | | 0.5079 | | 0.143 | | 0.0445 | pCi/g | 0.14 | 1 |
| Actinium-227 | 0.186 | U | 0.1623 | U | 0.439 | | 0.254 | pCi/g | 0.03 | 1 |
| Bismuth-212 | 0.0467 | U | 0.2020 | U | 0.601 | | 0.478 | pCi/g | 0.08 | 1 |
| Bismuth-214 | 0.501 | | 0.4489 | | 0.109 | | 0.0371 | pCi/g | 0.20 | 1 |
| Cesium-137 | -0.0198 | U | 0.03156 | U | 0.0543 | 0.0700 | 0.0422 | pCi/g | 0.42 | 1 |
| Lead-210 | -0.486 | U | 1.340 | | 1.01 | | 0.738 | pCi/g | 0.67 | 1 |
| Lead-212 | 0.407 | | 0.3898 | | 0.0900 | | 0.0361 | pCi/g | 0.08 | 1 |
| Lead-214 | 0.428 | | 0.4224 | | 0.0981 | | 0.0435 | pCi/g | 0.02 | 1 |
| Potassium-40 | 8.58 | | 8.683 | | 1.46 | | 0.236 | pCi/g | 0.03 | 1 |
| Protactinium-231 | 0.000 | U | 0.0000 | U | 0.480 | | 1.77 | pCi/g | 0 | 1 |
| Protactinium-234 | 0.0546 | U | -0.03482 | U | 0.103 | | 0.205 | pCi/g | 0.47 | 1 |
| Radium-226 | 0.501 | | 0.4489 | | 0.109 | 0.200 | 0.0371 | pCi/g | 0.20 | 1 |

Eurofins TestAmerica, St. Louis

QC Sample Results

Client: Aptim Federal Services LLC
Project/Site: HPNS-Parcel G 501197

Job ID: 160-40800-1
SDG: GJ46599746

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS) (Continued)

Lab Sample ID: 160-40800-17 DU

Matrix: Solid

Analysis Batch: 494550

Client Sample ID: HPPG-ESU-TU124A-017

Prep Type: Total/NA

Prep Batch: 492647

| Analyte | Sample | Sample | DU | | Total | | LOQ | DLC | Unit | RER | Limit |
|--------------|--------|--------|----------|------|--------------------|--|--------|-------|------|------|-------|
| | Result | Qual | Result | Qual | Uncert. (2σ+/-) | | | | | | |
| Radium-228 | 0.457 | | 0.5079 | | 0.143 | | 0.0445 | pCi/g | | 0.14 | 1 |
| Thallium-208 | 0.197 | | 0.1809 | | 0.0511 | | 0.0119 | pCi/g | | 0.10 | 1 |
| Thorium 228 | 0.407 | | 0.3898 | | 0.0900 | | 0.0361 | pCi/g | | 0.08 | 1 |
| Thorium-232 | 0.457 | | 0.5079 | | 0.143 | | 0.0445 | pCi/g | | 0.14 | 1 |
| Thorium-234 | 0.858 | | 0.002044 | U | 0.00423 | | 0.835 | pCi/g | | 1.21 | 1 |
| Uranium-235 | 0.131 | U | 0.1924 | | 0.148 | | 0.105 | pCi/g | | 0.16 | 1 |
| Uranium-238 | 0.858 | | 0.002044 | U | 0.00423 | | 0.835 | pCi/g | | 1.21 | 1 |

Lab Sample ID: MB 160-492786/1-A

Matrix: Solid

Analysis Batch: 494668

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 492786

| Analyte | MB | MB | Count | | Total | | LOQ | DLC | Unit | Prepared | Analyzed | Dil Fac |
|------------------|----------|-----------|--------------------|---------|---------|--|--------|-------|------|----------------|----------------|---------|
| | Result | Qualifier | Uncert. (2σ+/-) | (2σ+/-) | Uncert. | | | | | | | |
| Actinium 228 | 0.08362 | U | 0.304 | 0.304 | | | 0.159 | pCi/g | | 12/22/20 09:41 | 01/12/21 07:49 | 1 |
| Actinium-227 | 0.2060 | U | 0.363 | 0.364 | | | 0.380 | pCi/g | | 12/22/20 09:41 | 01/12/21 07:49 | 1 |
| Bismuth-212 | 0.0000 | U | 0.190 | 0.190 | | | 0.156 | pCi/g | | 12/22/20 09:41 | 01/12/21 07:49 | 1 |
| Bismuth-214 | 0.04327 | U | 0.0555 | 0.0557 | | | 0.200 | pCi/g | | 12/22/20 09:41 | 01/12/21 07:49 | 1 |
| Cesium-137 | 0.01732 | U | 0.0574 | 0.0574 | 0.0700 | | 0.0444 | pCi/g | | 12/22/20 09:41 | 01/12/21 07:49 | 1 |
| Lead-210 | 0.2769 | U | 1.77 | 1.77 | | | 1.25 | pCi/g | | 12/22/20 09:41 | 01/12/21 07:49 | 1 |
| Lead-212 | 0.01115 | U | 0.125 | 0.125 | | | 0.101 | pCi/g | | 12/22/20 09:41 | 01/12/21 07:49 | 1 |
| Lead-214 | -0.02331 | U | 0.143 | 0.143 | | | 0.119 | pCi/g | | 12/22/20 09:41 | 01/12/21 07:49 | 1 |
| Potassium-40 | -0.3012 | U | 1.02 | 1.02 | | | 0.643 | pCi/g | | 12/22/20 09:41 | 01/12/21 07:49 | 1 |
| Protactinium-231 | -0.9479 | U | 2.88 | 2.88 | | | 2.32 | pCi/g | | 12/22/20 09:41 | 01/12/21 07:49 | 1 |
| Protactinium-234 | 0.1387 | U | 0.246 | 0.247 | | | 0.221 | pCi/g | | 12/22/20 09:41 | 01/12/21 07:49 | 1 |
| Radium-226 | 0.04327 | U | 0.0555 | 0.0557 | 0.200 | | 0.200 | pCi/g | | 12/22/20 09:41 | 01/12/21 07:49 | 1 |
| Radium-228 | 0.08362 | U | 0.304 | 0.304 | | | 0.159 | pCi/g | | 12/22/20 09:41 | 01/12/21 07:49 | 1 |
| Thallium-208 | 0.01678 | U | 0.108 | 0.108 | | | 0.0426 | pCi/g | | 12/22/20 09:41 | 01/12/21 07:49 | 1 |
| Thorium 228 | 0.01115 | U | 0.125 | 0.125 | | | 0.101 | pCi/g | | 12/22/20 09:41 | 01/12/21 07:49 | 1 |
| Thorium-232 | 0.08362 | U | 0.304 | 0.304 | | | 0.159 | pCi/g | | 12/22/20 09:41 | 01/12/21 07:49 | 1 |
| Thorium-234 | 0.1738 | U | 0.611 | 0.612 | | | 0.462 | pCi/g | | 12/22/20 09:41 | 01/12/21 07:49 | 1 |
| Uranium-235 | 0.05427 | U | 0.252 | 0.252 | | | 0.426 | pCi/g | | 12/22/20 09:41 | 01/12/21 07:49 | 1 |
| Uranium-238 | 0.1738 | U | 0.611 | 0.612 | | | 0.462 | pCi/g | | 12/22/20 09:41 | 01/12/21 07:49 | 1 |

Lab Sample ID: LCS 160-492786/2-A

Matrix: Solid

Analysis Batch: 494663

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 492786

| Analyte | Spike | LCS | LCS | Total | | LOQ | DLC | Unit | %Rec | Limits |
|---------------|-------|--------|------|--------------------|--------|---------|-------|------|------|----------|
| | Added | Result | Qual | Uncert. (2σ+/-) | | | | | | |
| Americium-241 | 96.4 | 92.99 | | 9.73 | | 0.464 | pCi/g | | 96 | 87 - 116 |
| Cesium-137 | 26.7 | 25.84 | | 2.75 | 0.0700 | 0.0725 | pCi/g | | 97 | 87 - 120 |
| Cobalt-60 | 9.37 | 8.808 | | 0.925 | | 0.00975 | pCi/g | | 94 | 87 - 115 |

Eurofins TestAmerica, St. Louis

QC Sample Results

Client: Aptim Federal Services LLC
 Project/Site: HPNS-Parcel G 501197

Job ID: 160-40800-1
 SDG: GJ46599746

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS) (Continued)

Lab Sample ID: 160-40800-27 DU

Matrix: Solid

Analysis Batch: 494666

Client Sample ID: HPPG-F-058

Prep Type: Total/NA

Prep Batch: 492786

| Analyte | Sample | Sample | DU | | Total | | RER | Limit | | |
|------------------|---------|--------|---------|------|--------------------|--------|--------|-------|------|---|
| | Result | Qual | Result | Qual | Uncert. (2σ+/-) | LOQ | DLC | Unit | | |
| Actinium 228 | 0.520 | | 0.5275 | | 0.192 | | 0.0561 | pCi/g | 0.02 | 1 |
| Actinium-227 | 0.119 | U | 0.1369 | U | 0.467 | | 0.286 | pCi/g | 0.03 | 1 |
| Bismuth-212 | 0.450 | U | -0.2289 | U | 0.722 | | 0.575 | pCi/g | 0.46 | 1 |
| Bismuth-214 | 0.368 | | 0.5319 | | 0.134 | | 0.0492 | pCi/g | 0.67 | 1 |
| Cesium-137 | -0.0245 | U | 0.01208 | U | 0.0360 | 0.0700 | 0.0279 | pCi/g | 0.40 | 1 |
| Lead-210 | 0.340 | U | 0.8863 | | 1.13 | | 0.763 | pCi/g | 0.22 | 1 |
| Lead-212 | 0.389 | | 0.4323 | | 0.105 | | 0.0451 | pCi/g | 0.22 | 1 |
| Lead-214 | 0.376 | | 0.4283 | | 0.105 | | 0.0518 | pCi/g | 0.25 | 1 |
| Potassium-40 | 8.72 | | 8.206 | | 1.50 | | 0.261 | pCi/g | 0.17 | 1 |
| Protactinium-231 | 0.699 | U | -0.6685 | U | 2.52 | | 2.05 | pCi/g | 0.34 | 1 |
| Protactinium-234 | 0.00226 | U | 0.08300 | U | 0.275 | | 0.224 | pCi/g | 0.27 | 1 |
| Radium-226 | 0.368 | | 0.5319 | | 0.134 | 0.200 | 0.0492 | pCi/g | 0.67 | 1 |
| Radium-228 | 0.520 | | 0.5275 | | 0.192 | | 0.0561 | pCi/g | 0.02 | 1 |
| Thallium-208 | 0.184 | | 0.1598 | | 0.0764 | | 0.0422 | pCi/g | 0.16 | 1 |
| Thorium 228 | 0.389 | | 0.4323 | | 0.105 | | 0.0451 | pCi/g | 0.22 | 1 |
| Thorium-232 | 0.520 | | 0.5275 | | 0.192 | | 0.0561 | pCi/g | 0.02 | 1 |
| Thorium-234 | -0.791 | U | 0.9144 | | 0.536 | | 0.383 | pCi/g | 1.70 | 1 |
| Uranium-235 | -0.177 | U | -0.2184 | U | 0.133 | | 0.440 | pCi/g | 0.11 | 1 |
| Uranium-238 | -0.791 | U | 0.9144 | | 0.536 | | 0.383 | pCi/g | 1.70 | 1 |

Eurofins TestAmerica, St. Louis

QC Association Summary

Client: Aptim Federal Services LLC
Project/Site: HPNS-Parcel G 501197

Job ID: 160-40800-1
SDG: GJ46599746

Rad

Leach Batch: 492295

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|-----------------|---------------------|-----------|--------|---------------|------------|
| 160-40800-1 | HPPG-ESU-TU124A-001 | Total/NA | Solid | Dry and Grind | |
| 160-40800-2 | HPPG-ESU-TU124A-002 | Total/NA | Solid | Dry and Grind | |
| 160-40800-3 | HPPG-ESU-TU124A-003 | Total/NA | Solid | Dry and Grind | |
| 160-40800-4 | HPPG-ESU-TU124A-004 | Total/NA | Solid | Dry and Grind | |
| 160-40800-5 | HPPG-ESU-TU124A-005 | Total/NA | Solid | Dry and Grind | |
| 160-40800-6 | HPPG-ESU-TU124A-006 | Total/NA | Solid | Dry and Grind | |
| 160-40800-7 | HPPG-ESU-TU124A-007 | Total/NA | Solid | Dry and Grind | |
| 160-40800-8 | HPPG-ESU-TU124A-008 | Total/NA | Solid | Dry and Grind | |
| 160-40800-9 | HPPG-ESU-TU124A-009 | Total/NA | Solid | Dry and Grind | |
| 160-40800-10 | HPPG-ESU-TU124A-010 | Total/NA | Solid | Dry and Grind | |
| 160-40800-11 | HPPG-ESU-TU124A-011 | Total/NA | Solid | Dry and Grind | |
| 160-40800-12 | HPPG-ESU-TU124A-012 | Total/NA | Solid | Dry and Grind | |
| 160-40800-13 | HPPG-ESU-TU124A-013 | Total/NA | Solid | Dry and Grind | |
| 160-40800-14 | HPPG-ESU-TU124A-014 | Total/NA | Solid | Dry and Grind | |
| 160-40800-15 | HPPG-ESU-TU124A-015 | Total/NA | Solid | Dry and Grind | |
| 160-40800-16 | HPPG-ESU-TU124A-016 | Total/NA | Solid | Dry and Grind | |
| 160-40800-17 | HPPG-ESU-TU124A-017 | Total/NA | Solid | Dry and Grind | |
| 160-40800-18 | HPPG-ESU-TU124A-018 | Total/NA | Solid | Dry and Grind | |
| 160-40800-4 DU | HPPG-ESU-TU124A-004 | Total/NA | Solid | Dry and Grind | |
| 160-40800-17 DU | HPPG-ESU-TU124A-017 | Total/NA | Solid | Dry and Grind | |

Leach Batch: 492298

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|-----------------|---------------------|-----------|--------|---------------|------------|
| 160-40800-19 | HPPG-ESU-TU124A-019 | Total/NA | Solid | Dry and Grind | |
| 160-40800-20 | HPPG-ESU-TU124A-020 | Total/NA | Solid | Dry and Grind | |
| 160-40800-21 | HPPG-ESU-TU124A-021 | Total/NA | Solid | Dry and Grind | |
| 160-40800-22 | HPPG-ESU-TU124A-022 | Total/NA | Solid | Dry and Grind | |
| 160-40800-23 | HPPG-ESU-TU124A-023 | Total/NA | Solid | Dry and Grind | |
| 160-40800-24 | HPPG-ESU-TU124A-024 | Total/NA | Solid | Dry and Grind | |
| 160-40800-25 | HPPG-ESU-TU124A-025 | Total/NA | Solid | Dry and Grind | |
| 160-40800-26 | HPPG-F-057 | Total/NA | Solid | Dry and Grind | |
| 160-40800-27 | HPPG-F-058 | Total/NA | Solid | Dry and Grind | |
| 160-40800-21 DU | HPPG-ESU-TU124A-021 | Total/NA | Solid | Dry and Grind | |
| 160-40800-27 DU | HPPG-F-058 | Total/NA | Solid | Dry and Grind | |

Prep Batch: 492605

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|--------------------|---------------------|-----------|--------|-------------|------------|
| 160-40800-1 | HPPG-ESU-TU124A-001 | Total/NA | Solid | Fill_Geo-21 | 492295 |
| 160-40800-2 | HPPG-ESU-TU124A-002 | Total/NA | Solid | Fill_Geo-21 | 492295 |
| 160-40800-3 | HPPG-ESU-TU124A-003 | Total/NA | Solid | Fill_Geo-21 | 492295 |
| 160-40800-4 | HPPG-ESU-TU124A-004 | Total/NA | Solid | Fill_Geo-21 | 492295 |
| MB 160-492605/1-A | Method Blank | Total/NA | Solid | Fill_Geo-21 | |
| LCS 160-492605/2-A | Lab Control Sample | Total/NA | Solid | Fill_Geo-21 | |
| 160-40800-4 DU | HPPG-ESU-TU124A-004 | Total/NA | Solid | Fill_Geo-21 | 492295 |

Prep Batch: 492647

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---------------|---------------------|-----------|--------|-------------|------------|
| 160-40800-5 | HPPG-ESU-TU124A-005 | Total/NA | Solid | Fill_Geo-21 | 492295 |
| 160-40800-6 | HPPG-ESU-TU124A-006 | Total/NA | Solid | Fill_Geo-21 | 492295 |
| 160-40800-7 | HPPG-ESU-TU124A-007 | Total/NA | Solid | Fill_Geo-21 | 492295 |
| 160-40800-8 | HPPG-ESU-TU124A-008 | Total/NA | Solid | Fill_Geo-21 | 492295 |

Eurofins TestAmerica, St. Louis

QC Association Summary

Client: Aptim Federal Services LLC
 Project/Site: HPNS-Parcel G 501197

Job ID: 160-40800-1
 SDG: GJ46599746

Rad (Continued)

Prep Batch: 492647 (Continued)

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|--------------------|---------------------|-----------|--------|-------------|------------|
| 160-40800-9 | HPPG-ESU-TU124A-009 | Total/NA | Solid | Fill_Geo-21 | 492295 |
| 160-40800-10 | HPPG-ESU-TU124A-010 | Total/NA | Solid | Fill_Geo-21 | 492295 |
| 160-40800-11 | HPPG-ESU-TU124A-011 | Total/NA | Solid | Fill_Geo-21 | 492295 |
| 160-40800-12 | HPPG-ESU-TU124A-012 | Total/NA | Solid | Fill_Geo-21 | 492295 |
| 160-40800-13 | HPPG-ESU-TU124A-013 | Total/NA | Solid | Fill_Geo-21 | 492295 |
| 160-40800-14 | HPPG-ESU-TU124A-014 | Total/NA | Solid | Fill_Geo-21 | 492295 |
| 160-40800-15 | HPPG-ESU-TU124A-015 | Total/NA | Solid | Fill_Geo-21 | 492295 |
| 160-40800-16 | HPPG-ESU-TU124A-016 | Total/NA | Solid | Fill_Geo-21 | 492295 |
| 160-40800-17 | HPPG-ESU-TU124A-017 | Total/NA | Solid | Fill_Geo-21 | 492295 |
| 160-40800-18 | HPPG-ESU-TU124A-018 | Total/NA | Solid | Fill_Geo-21 | 492295 |
| MB 160-492647/1-A | Method Blank | Total/NA | Solid | Fill_Geo-21 | |
| LCS 160-492647/2-A | Lab Control Sample | Total/NA | Solid | Fill_Geo-21 | |
| 160-40800-17 DU | HPPG-ESU-TU124A-017 | Total/NA | Solid | Fill_Geo-21 | 492295 |

Prep Batch: 492786

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|--------------------|---------------------|-----------|--------|-------------|------------|
| 160-40800-19 | HPPG-ESU-TU124A-019 | Total/NA | Solid | Fill_Geo-21 | 492298 |
| 160-40800-20 | HPPG-ESU-TU124A-020 | Total/NA | Solid | Fill_Geo-21 | 492298 |
| 160-40800-21 | HPPG-ESU-TU124A-021 | Total/NA | Solid | Fill_Geo-21 | 492298 |
| 160-40800-22 | HPPG-ESU-TU124A-022 | Total/NA | Solid | Fill_Geo-21 | 492298 |
| 160-40800-23 | HPPG-ESU-TU124A-023 | Total/NA | Solid | Fill_Geo-21 | 492298 |
| 160-40800-24 | HPPG-ESU-TU124A-024 | Total/NA | Solid | Fill_Geo-21 | 492298 |
| 160-40800-25 | HPPG-ESU-TU124A-025 | Total/NA | Solid | Fill_Geo-21 | 492298 |
| 160-40800-26 | HPPG-F-057 | Total/NA | Solid | Fill_Geo-21 | 492298 |
| 160-40800-27 | HPPG-F-058 | Total/NA | Solid | Fill_Geo-21 | 492298 |
| MB 160-492786/1-A | Method Blank | Total/NA | Solid | Fill_Geo-21 | |
| LCS 160-492786/2-A | Lab Control Sample | Total/NA | Solid | Fill_Geo-21 | |
| 160-40800-27 DU | HPPG-F-058 | Total/NA | Solid | Fill_Geo-21 | 492298 |

Prep Batch: 493207

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|--------------------|---------------------|-----------|--------|--------|------------|
| 160-40800-1 | HPPG-ESU-TU124A-001 | Total/NA | Solid | DPS-7 | 492295 |
| 160-40800-11 | HPPG-ESU-TU124A-011 | Total/NA | Solid | DPS-7 | 492295 |
| 160-40800-21 | HPPG-ESU-TU124A-021 | Total/NA | Solid | DPS-7 | 492298 |
| MB 160-493207/23-A | Method Blank | Total/NA | Solid | DPS-7 | |
| LCS 160-493207/1-A | Lab Control Sample | Total/NA | Solid | DPS-7 | |
| 160-40800-21 DU | HPPG-ESU-TU124A-021 | Total/NA | Solid | DPS-7 | 492298 |

Tracer/Carrier Summary

Client: Aptim Federal Services LLC
Project/Site: HPNS-Parcel G 501197

Job ID: 160-40800-1
SDG: GJ46599746

Method: 905 - Strontium-90 (GFPC)

Matrix: Solid

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

| Lab Sample ID | Client Sample ID | Sr (40-110) | Y (40-110) |
|--------------------|---------------------|----------------|---------------|
| 160-40800-1 | HPPG-ESU-TU124A-001 | 99.6 | 90.5 |
| 160-40800-11 | HPPG-ESU-TU124A-011 | 95.5 | 90.5 |
| 160-40800-21 | HPPG-ESU-TU124A-021 | 92.7 | 90.5 |
| 160-40800-21 DU | HPPG-ESU-TU124A-021 | 92.9 | 89.0 |
| LCS 160-493207/1-A | Lab Control Sample | 103 | 81.5 |
| MB 160-493207/23-A | Method Blank | 101 | 90.1 |

Tracer/Carrier Legend

Sr = Sr Carrier

Y = Y Carrier